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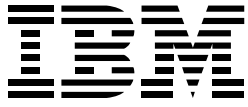
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INTERNATIONAL BUSINESS MACHINES CORPORATION

Dated: January 29, 2014



*OS/2 Warp Server
for e-business*
(Course Code WS97)

Instructor Guide
ERC1.0

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Instructor Course Overview

This course will teach students how to plan, install, and administer all phases of OS/2 Warp Server for e-business.

Instructors teaching this course must have a background in:

- OS/2 Warp Server for e-business installation, configuration, and administration
- Networking and LAN concepts
- Windows 95 and NT Network Neighborhood concepts
- DHCP and DNS server configuration

Instructors must be familiar with the contents of:

- OS/2 Warp Server for e-business

The above documents are shipped with the OS/2 Warp Server for e-business product (PDF and PS format).

It is recommended (although not required) that instructors be familiar with the concepts of :

- Internet protocols (ftp, http, bootp, and so forth)
- Setting up and building a Web site (Lotus Domino)
- Java servlet environment (WebSphere)

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Measurement Plan

A pilot course for this class will be conducted the second week in May. This may also serve as a T3 class as the project manager does not want to do both. In this case, the audience for the class will be mixed. Feedback from the pilot class will serve as input to possible course modifications.

Testing Strategy

This class does not have any formal testing requirements. Students will receive feedback through interaction with the instructor during classroom presentations and from their work on lab exercises.

Course Objectives Measured

No objectives will be formally measured. Technical reviews will assure the technical quality of the course content. The labs will provide students the opportunity to apply what they have learned and get feedback on their performance by the success of their actions and from guidance and interaction with the instructor. Labs will also allow students to check their understanding, apply their knowledge, and build their confidence.

Throughout this course, the developer references a number of units and page numbers in the reference guides.

These references may or may not be shared with the students.

Course Description

OS/2 Warp Server for e-business

Duration : 5 days

Purpose

This course is designed to teach students how to plan an installation of OS/2 Warp Server for e-business, install the selected server components, administer, and maintain the server and network after installation.

Audience

System and network administrators.

Prerequisites

- Basic concepts of LAN networking, including file and resource sharing
- Ability to install and configure network interface cards, drivers, and protocols (netbios, TCP/IP, and so forth) using system supplied tools. Experience in installing, configuring, and using OS/2 client systems
- Understand Windows Network Neighborhood concepts

Objectives

After completing this course, you should be able to:

- Describe the features available in OS/2 Warp Server for e-business.
- Plan an effective installation strategy
- Install and configure OS/2 Warp Server for e-business, including Domino and WebSphere
- Administer OS/2 Warp Server for e-business and clients
- Tune OS/2 Warp Server for e-business and clients
- Integrate OS/2 Warp Server for e-business into a heterogeneous client and server environment

- Plan a successful migration from previous versions of OS/2 Warp Server for e-business
- Perform basic problem determination and invoke additional problem determination tools

Agenda

Day 1

- (02:00) Unit 1. Overview of OS/2 Warp Server for e-business
- (00:30) Class Introduction
- (01:30) Overview of OS/2 Warp Server for e-business
- (01:00) Unit 2. Planning OS/2 Warp Server for e-business Installation
- (00:20) Deciding Which Features to Install
- (00:40) Developing an Installation Strategy
- (04:00) Unit 3. Installing and Configuring OS/2 Warp Server for e-business
- (01:00) Installing OS/2 Warp Server for e-business
- (01:00) LAB: Installing and Configuring OS/2 Warp Server for e-business
- (00:45) Installing Additional Server Applications
- (00:45) LAB: Installing Additional Server Applications

Day 2

- (00:30) Testing and Documenting the Network Installation and Configuration
- (06:05) Unit 4. Administering Common Tasks in OS/2 Warp Server for e-business
- (00:10) Performing Initial Network Administration Tasks (overview)
- (00:25) Starting, Stopping, and Pausing Server Services
- (00:20) LAB: Starting, Stopping and Pausing Server Services
- (00:05) Accessing the Network
- (00:30) Managing Domains
- (00:30) LAB: Accessing the Network and Managing Domains
- (00:20) Sharing Network Resources
- (00:20) Defining Access Control Profiles
- (00:20) Managing Users and Groups
- (00:20) Managing Network Printing
- (00:30) LAB: Users, Groups, Access Control Profiles

Day 3

- (00:30) Managing Volumes and Partitions
- (00:20) Managing Backup and Recovery
- (00:40) LAB: Managing Volumes and Backup and Recovery
- (00:15) Managing Network Security
- (00:30) Managing Server Applications
- (08:50) Unit 5. Administering Installation-Specific Tasks in OS/2 Warp Server for e-business
- (00:20) Managing File and DCDB Replication
- (00:45) LAB: Replication
- (00:45) Tuning OS/2 Warp Server for e-business
- (00:30) LAB: Perform Initial Tuning

(01:00) Performing Other Network Tasks
(01:00) Performing Multiple Client/Server Integration
(01:00) LAB: Integrating Network Neighborhood and NT Servers

Day 4

(01:30) Install, Configure, and Manage Remote IPL
(06:00) Unit 6. Migrating an Existing System to OS/2 Warp Server for e-business
(01:30) Planning the Migration
(00:45) Preparing to Migrate
(00:30) Option #1: Migrating from the Panel
(00:45) Option #2: Migrating Using CID
(00:30) Option #3: Migrating to New or Alternative System Hardware
(01:30) LAB: Migration

Day 5

(06:00) Unit 7. Resolving Problems (7.5 hours with optional RIPL Lab)
(00:40) Gathering Initial Problem Documentation Data
(00:15) Analyzing Messages and Log Data
(00:40) LAB: Gathering Problem Determination Data
(15:00) Identifying Server Component Problems
(00:30) LAB: Identifying Server Component Problems
(00:10) Invoking Appropriate Support Assistance
(01:30) Obtaining Additional Problem Documentation Using System Tools under the Direction of Support
(01:30) LAB: Obtaining Additional Problem Documentation Information
(00:15) Installing Fixpacks
(00:15) Obtaining Additional Problem Determination Training
(01:30) LAB: Remote IPL (Optional)

Unit 1. Overview of OS/2 Warp Server for e-business

What This Unit Is About

This unit is an overview of the features and functions of OS/2 Warp Server for e-business.

What You Should Be Able to Do

After completing this unit, you should be able to describe the following features of OS/2 Warp Server for e-business:

- OS/2 Base Operating System
- Logical Volume Manager
- Journaled File System
- Year 2000 and the Euro
- Updated Desktop
- File and Print Sharing Services
- TCP/IP Services
- Netscape Communicator
- Java Support
- Neighborhood Browser Enabler
- Windows NT User Account Manager
- LDAP Client Support
- I2O Support
- Tivoli Management Agent
- Lotus Domino Go Webserver
- IBM WebSphere Application Server
- Personally Safe 'n' Sound Backup and Recovery
- Advanced Print Services
- Remote Access Services
- Additional New Features
- Replaced or Discontinued Components

How You Will Check Your Progress

Accountability:

- Discussion and follow-on labs in subsequent units.

References

- | | |
|-----------|--|
| SG24-4702 | <i>OS/Warp Server Back up/Restore User's Guide</i> |
| SG24-5280 | <i>Beyond DHCP-Work Your TCP/IP Internetwork with Dynamic IP</i> |

SCT7-S2NA *Quick Beginnings: Installing OS/2 Warp Server for e-business*

Objectives

After completing this unit, you should be able to describe the following features of OS/2 Warp Server for e-business:

- OS/2 Base Operating System
- Logical Volume Manager
- Journaled File System
- Year 2000 and the Euro
- Updated Desktop
- File and Print Sharing Services
- TCP/IP Services
- Netscape Communicator
- Java Support
- Neighborhood Browser Enabler
- Windows NT User Account Manager
- LDAP Client Support
- I2O Support
- Tivoli Management Agent
- Lotus Domino Go Webserver
- IBM WebSphere Application Server
- Personally Safe 'n' Sound Backup and Recovery
- Advanced Print Services
- Remote Access Services
- Additional New Features
- Replaced or Discontinued Components

Figure 1-1. Objectives (ws971100)

Notes:

Instructor Notes:

Purpose —

Details —

Transition Statement —

1.1 Overview of OS/2 Warp Server for e-business

Instructor Topic Introduction

What students will do — Students will be given an overview and demonstration of various features of OS/2 Warp Server for e-business to prepare them to plan and install a working OS/2 Warp Server for e-business system.

How students will do it — Students will do this through lecture, demonstration, and discussion. Instructor should discuss each of the features listed, pointing out the new features in OS/2 Warp Server for e-business. Where appropriate, a live visual of the features should be shown; for example, the updated desktop (Warp 4 style), LVM, resource sharing, TCP/IP applications, and so forth. In most cases, opening the appropriate folder and pointing out the services objects will be all that is needed at this point.

What students will learn — The various features available in OS/2 Warp Server for e-business.

- OS/2 Base Operating System
- Logical Volume Manager
- Journaled File System
- Year 2000 and the Euro
- Updated Desktop
- File and Print Sharing Services
- TCP/IP Services
- Netscape Communicator
- Java Support
- Neighborhood Browser Enabler
- Windows NT User Account Manager
- LDAP Client Support
- I2O Support
- Tivoli Management Agent
- Lotus Domino Go Webserver
- IBM WebSphere Application Server
- Personally Safe 'n' Sound Backup and Recovery
- Advanced Print Services
- Remote Access Services
- Additional New Features
- Replaced or Discontinued Components

How this will help students in their job — Enables students to decide which features to install for a given networking environment.

OS/2 Base Operating System

- The base operating system for OS/2 Warp Server for e-business is an advanced, multitasking, 32-bit operating system that runs DOS, Windows, and OS/2 16-bit and 32-bit applications and utilizes SMP hardware configurations.

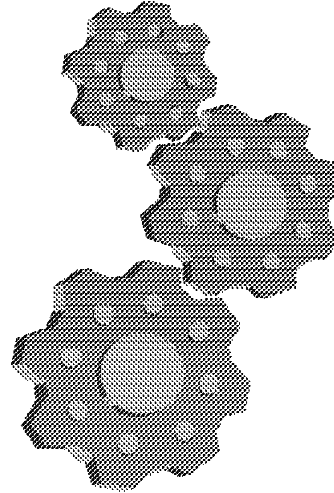


Figure 1-2. OS/2 Base Operating System (ws971102)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Note: Refer to Chapter 5. "Creating and Managing Volumes and Hard Disk Partitions" on page 53 for more information"

Note: For detailed information about LVM, Refer to "Logical Volume Manager" on page 15.

Transition Statement —

Logical Volume Manager

- The Logical Volume Manager (LVM) provides flexibility for configuring and managing disk drives on your system. LVM replaces the Fixed Disk Utility (FDISK). Disk drives and partitions are configured as logical volumes with a new set of utilities, which support the following enhancements:
 - The drive letter for a disk volume is explicitly assigned when the volume is added, and it is persistent across OS/2 system restarts.
 - A disk volume drive letter can be changed at any time; however, drive letters assigned to operating system volumes should not be changed.
 - Under most conditions, OS/2 does not need to be rebooted after a disk volume drive letter is added or changed.
 - The disk volume drive letters do not need to be contiguous.
 - CD-ROM drive letters can remain unchanged when disk volumes are added.
 - LAN drive letter assignments can remain unchanged when disk volumes are added.
 - Logical volumes can span multiple partitions and physical disks.

Figure 1-3. Logical Volume Manager (ws971104)

Notes:

Note: For detailed information about JFS, Refer to “Journaled File System (JFS)” on page 20.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Journalized File System

- The Journalized File System (JFS) is a scalable, 32-bit, performance-oriented file system. To facilitate quick recovery and restart after system failures, JFS uses database journaling techniques, enabling it to restore file systems quickly, which contribute to improved server availability. JFS raises the previous file-size limit of two gigabytes (GB) to two terabytes (TB). The partition size limit is raised from 64 GB to 2 TB. JFS volumes can be increased in size, using Logical Volume Manager (LVM), without having to be reformatted.

Figure 1-4. Journalized File System (ws971106)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Year 2000 and the Euro

- OS/2 Warp Server for e-business is fully enabled to support the Year 2000 (Y2K) and euro currency transitions.
- The new currency in Europe goes by the name euro. The euro is the monetary unit of the European Monetary Union (EMU) that was introduced alongside national currencies on the first of January 1999. The original members of the EMU are Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Portugal, and Spain. The national currencies of these countries have a fixed exchange rate with the euro, and will be withdrawn after a transition period, which is planned for completion in 2002.
- Support for the euro sign as the currency symbol is available when you specify country information during the installation process.

Figure 1-5. Year 2000 and the Euro (ws971108)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Updated Desktop

- The Desktop in OS/2 Warp Server for e-business is based on the Desktop of OS/2 Warp 4. In addition, new icons are on the Desktop, and some existing icons are in a different location than they were in previous versions of OS/2 Warp Server. Take a few minutes after installing OS/2 Warp Server for e-business to become familiar with the new Desktop. Refer to *OS/2 Desktop Guide* for more information about the Desktop.

Figure 1-6. Updated Desktop (ws971110)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

File and Print Sharing Services

- File and Print Sharing Services enables the server to share directories, printers, and serial devices across a local area network (LAN).

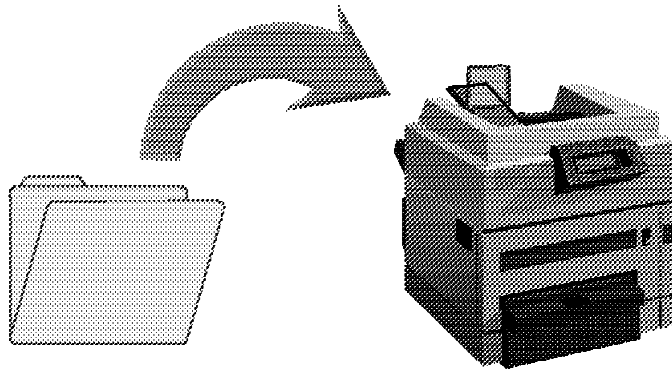


Figure 1-7. File and Print Sharing Services (ws971112)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

TCP/IP Services

- TCP/IP Services enables the server to distribute the TCP/IP Internet protocol configuration to client workstations. Highlights of the TCP/IP services include:
 - Dynamic Host Configuration Protocol (DHCP) enhancements, which include Remote IPL (RIPL) support and BootP server capability
 - Dynamic Domain Name Server (DDNS) enhancements, which enable the network administrator to more easily manage IP addresses
 - Improved buffer management, resulting in increased performance
 - Improved printer streaming and printer security

Figure 1-8. TCP/IP Services (ws971114)

Notes:

Note: Refer to the TCP/IP online documentation in the Assistance Center folder on the Desktop for details about TCP/IP configuration after installation. Additional information is available in the redbook *Beyond DHCP—Work Your TCP/IP Internetwork with Dynamic IP*, SG24-5280.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Netscape Communicator

- Netscape Communicator 4.04b lets you access and navigate the Internet with Netscape Navigator, send and receive e-mail with Netscape Messenger, keep track of the latest postings in your favorite newsgroups with Netscape Collabra, and create your own Web pages with Netscape Composer. Some applications and services, such as those found at IBM Software Choice, use the browser as a graphical user interface (GUI) for installing, uninstalling, or updating other software programs.

Figure 1-9. Netscape Communicator (ws971116)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Java Support

- The OS/2 Warp Developers Kit, Java Edition, Version 1.1.7 delivers a full implementation of Java, including both the run-time and development packages. This release improves performance and provides euro support. Significant enhancements in graphics, throughput, and scalability set new standards for Java Virtual Machine (JVM) performance.

Figure 1-10. Java Support (ws971118)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Neighborhood Browser Enabler

- The Neighborhood Browser Enabler is an OS/2 Warp Server for e-business service that functions as a master browser for Windows clients. The master browser service permits OS/2 Warp Server for e-business domain resources to be viewed and shared from the Windows NT 4.0, Windows 98, and Windows 95 Network Neighborhood.

Figure 1-11. Neighborhood Browser Enabler (ws971120)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Windows NT User Account Manager

- The Windows NT User Account Manager eases the management of user and group accounts in a heterogeneous server environment. This feature allows user and group accounts that are defined and managed in the OS/2 Warp Server domain to be replicated to a Windows NT 4.0 server.

Figure 1-12. Windows NT User Account Manager (ws971122)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

LDAP Client Support

- OS/2 Warp Server for e-business supports the Lightweight Directory Access Protocol (LDAP), a standards-based Internet directory protocol.
- The OS/2 LDAP Client Toolkit for C and Java Version 1.0 is for C and Java programmers who want to enable new or existing applications to access, search, and update LDAP servers, using LDAP V2 or LDAP V3 protocols.

Figure 1-13. LDAP Client Support (ws971124)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

I2O Support

- **OS/2 Warp Server for e-business helps simplify the attachment of new devices. I2O is an industry-standard architecture that defines a new interface between a processor and I/O adapters. This specification provides for movement of function from the system CPU to the adapter card. Use of I2O, either on the system board or as an adapter in servers, reduces the CPU load, which helps increase system throughput. OS/2 Warp Server for e-business supports I2O for SCSI adapters and for ethernet and token-ring LAN adapters.**

Figure 1-14. I2O Support (ws971126)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Tivoli Management Agent

- The Tivoli Management Agent (TMA) extends the client/server hierarchy and enhances the scalability of a Tivoli Management Environment (TME). TME is a systems management tool for enterprise-wide, heterogeneous networks. The TMA increases the number of resources that can be managed and, at the same time, enables those resources to be used more efficiently.
- Besides providing full functionality down to the endpoints, the TMA reduces the physical requirements to manage a system. The TMA is a replacement for the SystemView agent and supports OS/2 using TCP/IP.

Figure 1-15. Tivoli Management Agent (ws971128)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Lotus Domino Go Webserver and IBM WebSphere Application Server

- OS/2 Warp Server for e-business includes Lotus Domino Go Webserver 4.6.2.6. Lotus Domino Go Webserver is a scalable, high-performance Web server that is easy to install and maintain. It includes state-of-the-art security, site indexing capabilities, and support for JDK 1.1.x. Lotus Domino Go Webserver makes it possible to maintain a productive Web presence in a diverse and dynamic environment. After you install Lotus Domino Go Webserver, you can add Java support by installing IBM WebSphere Application Server 1.1. IBM WebSphere Application Server is a plug-in for Lotus Domino Go Webserver and includes:
 - A Java servlet engine that implements the JavaSoft Java Servlet API
 - IBM additions and extensions to the Java Servlet API for enhanced session tracking and personalization
 - Support for JavaServer Pages (JSP), a powerful approach to dynamic Web pages
 - A database connection manager for caching and reusing connections to JDBC-compliant databases
 - Data access JavaBeans (additional Java classes for accessing JDBC-compliant databases)
 - CORBA Support—an object request broker (ORB) and a set of services that are compliant with the Common Object Request Broker Architecture (CORBA)

Figure 1-16. Lotus Domino Go Webserver and IBM WebSphere Application Server (ws971130)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Personally Safe 'n' Sound Backup and Recovery

- **Personally Safe 'n' Sound (PSnS Backup and Recovery)** is a powerful backup utility that lets you safeguard your OS/2 system against loss of data. It allows you to set up a Backup Strategy for each activity you perform on your machine. The strategy, once employed, provides protection against all of the likely causes of data loss: user errors, hardware malfunctions, malicious damage, and disasters.
- For more information about using PSnS, refer to *OS/2 Warp Server Backup/Restore User's Guide* and the other online books that come with it. More information is available on the Internet at the following address:

<http://www.software.ibm.com/os/warp/warp-server>

Figure 1-17. Personally Safe-'n&csq-Sound Backup and (ws971132)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Advanced Print Services

- **Advanced Print Services, also known as Print Services Facility/2 or PSF/2, allows you to print file formats that your printer typically does not support. Advanced Print Services automatically performs data stream transformations to convert the data in a document into the type of data required by the printer. For example, Advanced Print Services can transform a PostScript document into an advanced function presentation (AFP) document that can be printed on a high-speed IBM printer, or it can transform an AFP document into one that can be printed on an HP LaserJet printer.**
- **Advanced Print Services lets users send print jobs from computers running OS/2, Windows, DOS, or AIX.**

Figure 1-18. Advanced Print Services (ws971134)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Remote Access Services

- Remote Access Services, a replacement for LAN Distance, includes a remote access server that allows NetBIOS and point-to-point protocol (PPP) clients, including Microsoft Windows NT, Windows 98, Windows 95, IBM OS/2 Internet Dialer, and IBM 8235 users, to remotely access the LAN. The following services are available:
 - Answering incoming calls to establish connections
 - Routing and filtering data to bridge the Remote Access Client workstation to the LAN
 - Providing security for LAN resources
 - Performing other administrative functions for the wide area network (WAN)
 - Assigning IP addresses with DDNS support
- Remote Access Services allows multiple remote workstations to dial in concurrently and access LAN resources. The number of remote workstations supported is determined by your server's processing power and its communications adapters.

Figure 1-19. Remote Access Services (ws971136)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Additional New Features

The following additional features are new with OS/2 Warp Server for e-business:

- Long format option during installation. refer to “Formatting the Installation Volume” on page 32 for more information.
- CHKINST.EXE²software sniffer² utility checks the system prior to installation to determine what preparation is required and then reports the results.
- Increase in maximum number of ACLs, open files, connections, searches, and shares. The maximum number of ACLs for the Journaled File System (JFS) is limited only by available disk space. The following capacity parameters in the server section of the IBMLAN.INI file have been increased:
 - maxopens
 - maxsearches
 - maxconnections
 - maxshares
- These changes increase the number of users, files, searches, and shares the server can maintain. refer to *Performance Tuning* for more information.

Figure 1-20. Additional New Features (ws971138)

Notes:

Note: Refer to “CHKINST System Checking Utility” on page 26 of *Migrating to OS/2 Warp Server for e-business*, SG24-5135 for more information.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Replaced or Discontinued Components (1 of 2)

- The following components, previously installed with OS/2 Warp or OS/2 Warp Server, are replaced in OS/2 Warp Server for e-business:
 - Fixed Disk Utility (FDISK.COM), replaced by Logical Volume Management Tool (LVM.EXE)
 - Fixed Disk Presentation Manager Utility (FDISKPM.EXE), replaced by Logical Volume Manager Graphical User Interface (LVMGUI.CMD)
 - Java 1.0, replaced by Java 1.1.7
 - Pulse, replaced by CPU Monitor (CPUMON)
 - LAN Distance, replaced by Remote Access Services
 - SystemView Agent (Netfinity TME 10), replaced by Tivoli Management Agent (TMA)

Figure 1-21. Replaced or Discontinued Components (1 of 2) (ws971140)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Replaced or Discontinued Components (2 of 2)

- The following components, previously installed with OS/2 Warp or OS/2 Warp Server, are not part of OS/2 Warp Server for e-business:
 - Password Coordinator
 - Network Signon Coordinator
 - BonusPak
 - OS/2 Warp Tutorial
 - OpenDoc
 - WarpGuide
 - VoiceType
 - Hibernate (Trapdoor)
 - Novell NetWare Client for OS/2
 - Dual boot is not supported
 - Easy Path installation
 - Mobile File Sync
 - PCOMM Lite 4.1
 - Keyworks
 - HP JetAdmin
 - Installation from diskettes, replaced by installation from CD
 - Remote client installation is not supported

Figure 1-22. Replaced or Discontinued Components (2 of 2) (ws971142)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Unit Summary

You should now be able to describe the following features of OS/2 Warp Server for e-business:

- OS/2 Base Operating System
- Logical Volume Manager
- Journaled File System
- Year 2000 and the Euro
- Updated Desktop
- File and Print Sharing Services
- TCP/IP Services
- Netscape Communicator
- Java Support
- Neighborhood Browser Enabler
- Windows NT User Account Manager
- LDAP Client Support
- I2O Support
- Tivoli Management Agent
- Lotus Domino Go Webserver
- IBM WebSphere Application Server
- Personally Safe 'n' Sound Backup and Recovery
- Advanced Print Services
- Remote Access Services
- Additional New Features
- Replaced or Discontinued Components

Figure 1-23. Unit Summary (ws9711zz)

Notes:

Instructor Notes:

Purpose —

Details —

Transition Statement —

Unit 2. Planning OS/2 Warp Server for e-business Installation

What This Unit Is About

This unit discusses how to plan an effective installation of OS/2 Warp Server for e-business.

What You Should Be Able to Do

After completing this unit, you should be able to:

- Determine OS/2 Warp Server for e-business features to be installed
- Select desired features from list of available features
 - Boot Manager
 - HPFS (HPFS386)
 - JFS
 - Netscape
 - Java
 - File and Print Sharing
 - Networking protocols
 - Backup (PSNS)
 - Tivoli
 - Advanced Print Services (APM)
 - PD/PSI
- Determine if the requirements for all desired features have been met
- Anticipate and resolve any potential ramifications of OS/2 components that will be deleted during installation (OpenDoc, VoiceType®, Ask PSP, and so forth)
- Create a final list of OS/2 Warp Server for e-business features to be installed and their requirements
- Determine other products to install
 - Other third-party software
 - IBM WebSphere
 - Lotus Domino
- Develop an Installation Strategy
 - Review current layout of the servers on the network and the network functions performed by each server
 - Determine if all servers meet hardware requirements to support installation of OS/2 Warp Server for e-business and additional function
 - Determine products and services currently installed
 - Determine availability and impact of taking server down for migration (and how long)
 - Determine volumes, partitions, and file systems
- Identify existing systems to be migrated

- OS/2 Warp servers to be migrated
- Non-OS/2 Warp servers to be migrated
- Identify and gather third-party hardware support diskettes, adapter device drivers, and peripheral device drivers (if necessary)
- Determine overall installation sequence and strategy

How You Will Check Your Progress

Accountability:

- Follow-on lab in which you will install OS/2 Warp Server for e-business.

References

SCT7-S2NA *Quick Beginnings: Installing OS/2 Warp Server for e-business*

Objectives

After completing this unit, you should be able to:

- Determine OS/2 Warp Server for e-business features to be installed
- Select desired features from list of available features
- Determine if the requirements for all desired features have been met
- Anticipate and resolve any potential ramifications of OS/2 components that will be deleted during installation (OpenDoc, VoiceType, Ask PSP, and so forth)
- Create a final list of OS/2 Warp Server for e-business features to be installed and their requirements
- Determine other products to install
- Develop an Installation Strategy
- Identify existing systems to be migrated
- Identify and gather third-party hardware support diskettes, adapter device drivers, and peripheral device drivers (if necessary)
- Determine overall installation sequence and strategy

Figure 2-1. Objectives (ws971200)

Notes:

Instructor Notes:

Purpose —

Details —

Transition Statement —

2.1 Deciding Which Features to Install

Instructor Topic Introduction

What students will do — Decide which features meet the needs of the server.

How students will do it — Listen to lecture, participate in instructor-led discussions, and use available product documentation to plan which features are required to meet the functions required for the server.

What students will learn — The features needed to meet specified server functionality.

- Determine OS/2 Warp Server for e-business features to be installed
- Select desired features from list of available features
 - Boot Manager
 - HPFS (HPFS386)
 - JFS
 - Netscape
 - Java
 - File and Print Sharing
 - Networking protocols
 - Backup (PSNS)
 - Tivoli
 - Advanced Print Services (APM)
 - PD/PSI features
- Determine if requirements for features have been met
- Anticipate and resolve any potential ramifications of OS/2 components that will be deleted during installation (OpenDoc, VoiceType, Ask PSP, and so forth)
- Create final list of OS/2 Warp Server for e-business features to be installed and their requirements
- Determine other products to install
 - Other third-party software
 - IBM WebSphere
 - Lotus Domino

How this will help students in their job — Knowing the functionality provided by each feature and the prerequisites needed to support any given feature is required to install and configure the server.

System Requirements (1 of 2)

- To install OS/2 Warp Server for e-business and use its services on the server, you need at least the following minimum hardware:
 - One or more Intel-compatible Pentium or higher processors with a speed of at least 133 MHz.
 - Note: A multiprocessor system must either comply with the Intel Multiprocessor Specification, Version 1.4 or 1.1, or it must be one of the following computers, each of which has its own proprietary SMP architecture:
 - Compaq Proliant 2000
 - Tricord PowerServer, models 30 and 40
 - IBM PC Server 720
 - A minimum of 32 MB of random access memory (RAM), but 64 MB or more provides better performance, depending on which services are installed.

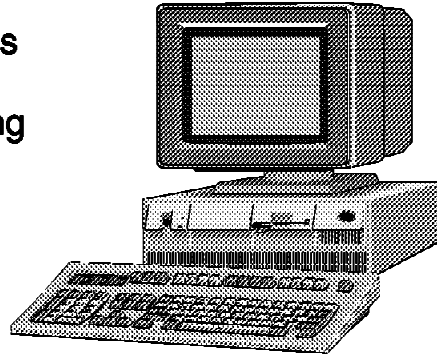


Figure 2-2. System Requirements (1 of 2) (ws971202)

Notes:

Note: The requirements in this section are based on related information available at publication time. Refer to the **README.TXT** file for updated information.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

System Requirements (2 of 2)

- A minimum of 120 MB of available hard disk space for the base operating system. A minimum of 200 MB is required for the base operating system and all default installation items. A total of 500 MB is recommended for a typical installation, depending on which services and components are installed. For installation requirements of services and components, refer to the table in "Hard Disk Space Requirements".
- A 1.44 MB, 3.5-inch diskette drive, configured as drive A.
- A 640 x 480 (16-color) or higher resolution VGA display.
- An IBM-compatible mouse.
- A CD-ROM drive supported by OS/2.
- A LAN adapter card supported by MPTS.
- Remote Access Services requires the supported remote access adapters, which are a subset of the supported MPTS LAN adapters.
- A modem that supports speeds of 9600 bps or higher, if you plan to use Remote Access Services.
- An Internet-enabled LAN or a modem, if you plan to use the Internet.

Figure 2-3. System Requirements (2 of 2) (ws971204)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Hard Disk Space Requirements

Note: The requirements in this section are based on information available at publication time.

Service	Number of Megabytes (MB)
Default installation: OS/2 base operating system plus default components	120.0
All optional OS/2 components	180.0
File and Print Sharing Services	15.0
TCP/IP Services	30.0
Remote Access Services	6.0
Netscape Communicator	11.0
Tivoli Management Agent	1.5
Personally Safe 'n' Sound	7.2
LDAP Services Toolkit	4.2
Advanced Print Services	54.0
First Failure Support Technology (FFST) 1.2	0.1
Online Books	10.0
Total (if all components and services are installed)	439.0

Figure 2-4. Hard Disk Space Requirements (ws971206)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Keyboards Supported during Installation (1 of 2)

- For SBCS versions of OS/2 Warp Server for e-business, code page 850 is the only code page that is supported during the first phase of the installation process or if you start the system from utility diskettes. As a result, you must select one of the Latin-1 keyboards, even if you normally select a non-Latin-1 keyboard. You can still set the country code to any valid country. This setting may affect the default country and keyboard settings used later in the installation process, including those used by the Logical Volume Management Tool (LVM), and for command line processing when the system is booted from utility diskettes. However, later in the installation, you can specify your preferred country and keyboard settings.

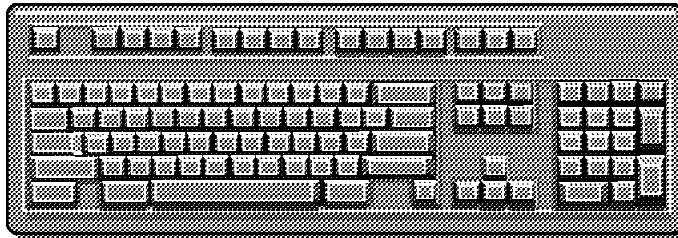


Figure 2-5. Keyboards Supported during Installation (1 of 2) (ws971208)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Keyboards Supported during Installation (2 of 2)

- These keyboards are supported during the first phase of OS/2 Warp Server for e-business installation

Country Code	Country Name
be	Belgium
br	Brazil
cf	Canadian French
dk	Denmark
fr	France
gr	Germany
it	Italy
la	Latin America
nl	Netherlands
no	Norway
sf	Swiss French
sg	Swiss German
sp	Spanish
su	Finland
sv	Sweden
uk	United Kingdom
us	United States
ux	US International

Figure 2-6. Keyboards Supported During Installation (2 of 2) (ws971210)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Display and Graphics Adapter Considerations

<http://service.software.ibm.com/os2ddpak/index.htm>

- If you find no specific driver for your graphics adapter, consider installing the *Generic VESA Unaccelerated GRADD (GENGRADD)* to obtain Super VGA resolutions and color support.

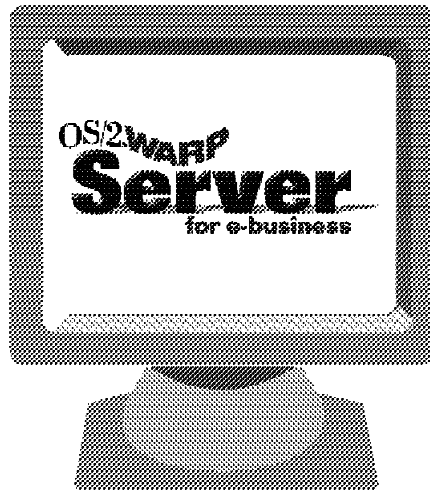


Figure 2-7. Display and Graphics Adapter Considerations (ws971212)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

2.2 Developing an Installation Strategy

Instructor Topic Introduction

What students will do — Plan a server installation.

How students will do it — Using material presented during lecture and product installation documentation, students will plan a server installation. Instructor-led discussion will be required in order for the students to determine the hardware requirements and software features desired for the installation.

What students will learn — How to plan an effective OS/2 Warp Server for e-business installation.

- Develop an Installation Strategy
 - Review current layout of the servers on the network and the network functions performed by each server
 - Determine if all servers meet hardware requirements to support installation of OS/2 Warp Server for e-business and additional function
 - Determine products and services currently installed
 - Determine availability and impact of taking server down for migration (and how long)
 - Determine volumes, partitions, and file systems
 - Plan for PD/PSI requirements
- Identify existing systems to be migrated
 - OS/2 Warp servers to be migrated
 - Non-OS/2 Warp servers to be migrated
- Identify and gather third-party hardware support diskettes, adapter device drivers, and peripheral device drivers (if necessary)
- Determine overall installation sequence and strategy

How this will help students in their job — Being able to install or upgrade a server with minimum impact to the business operation is a required part of a system administrator's tasks.

Installation Strategy Discussion

- Review current layout of the servers on the network and the network functions performed by each server
- Determine if all servers meet hardware requirements to support installation of OS/2 Warp Server for e-business and additional functions
- Determine products and services currently installed
- Determine availability and impact of taking existing server down
- Determine volumes, partitions, and file systems
- Plan for PD/PSI requirements
- Identify any existing systems to be migrated
- Identify and gather third-party hardware support diskettes, adapter device drivers, and peripheral device drivers (if necessary)
- Determine overall installation sequence and strategy
- CHKINST
- VCU

Figure 2-8. Installation Strategy (ws971214)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Unit Summary

You should now be able to:

- Determine OS/2 Warp Server for e-business features to be installed
- Select desired features from list of available features
- Determine if the requirements for all desired features have been met
- Anticipate and resolve any potential ramifications of OS/2 components that will be deleted during installation (OpenDoc, VoiceType, Ask PSP, and so forth)
- Create a final list of OS/2 Warp Server for e-business features to be installed and their requirements
- Determine other products to install
- Develop an Installation Strategy
- Identify existing systems to be migrated
- Identify and gather third-party hardware support diskettes, adapter device drivers, and peripheral device drivers (if necessary)
- Determine overall installation sequence and strategy

Figure 2-9. Unit Summary (ws9712zz)

Notes:

Instructor Notes:

Purpose —

Details —

Transition Statement —

Unit 3. Installing and Configuring OS/2 Warp Server for e-business

What This Unit Is About

This unit will cover the details of installing OS/2 Warp Server for e-business. Tuning, setup, and configuration details and their ramifications will also be discussed.

What You Should Be Able to Do

After completing this unit, you should be able to:

- Update installation diskettes
- Install, remove, and configure boot manager
- Install and format a bootable OS/2 Warp Server for e-business volume
- Install and configure basic hardware and software options
- Install and configure server components
- Create and name new partitions
- Create, modify, and format volumes
- Configure the server to function in the context of the larger network
- Back up and print critical files
- Create emergency boot diskettes
- Install Lotus Domino
- Install IBM WebSphere
- Test the network installation and configuration
- Document the network installation and configuration

How You Will Check Your Progress

Accountability:

- Lab exercises

References

SCT7-S2NA *Quick Beginnings: Installing OS/2 Warp Server for e-business*

Objectives

After completing this unit, you should be able to:

- Update installation diskettes
- Install, remove and configure boot manager
- Install and format a bootable OS/2 Warp Server for e-business volume
- Install and configure server components
- Create and name new partitions
- Create, modify, and format volumes
- Configure the server to function in the context of the larger network
- Back up and print critical files
- Create emergency boot diskettes
- Install Lotus Domino
- Install IBM WebSphere
- Test the network installation and configuration
- Document the network installation and configuration

Figure 3-1. Objectives (ws971300)

Notes:

Instructor Notes:

Frequent reference to the *Quick Beginnings* document will be required throughout this unit. Instructors should be familiar with the layout of this document.

Purpose — This unit is an overview of the steps and decisions that will be used in installing OS/2 Warp Server for e-business. All students should already be familiar with installing a base Warp system (either Warp 3 or Warp 4), so the selections of hardware related components is only lightly touched on. Emphasis should be placed on updating installation diskettes (and making room), partitions and file system selection, server components, and additional features.

Details — The following points should be covered.

- Update installation diskettes
- Install, remove, and configure boot manager
- Install and format a bootable OS/2 Warp Server for e-business volume
- Install and configure basic hardware and software options
- Install and configure server components
- Create and name new partitions
- Create, modify, and format volumes
- Configure the server to function in the context of the larger network
- Back up and print critical files
- Create emergency boot diskettes
- Install Lotus Domino
- Install IBM WebSphere
- Test the network installation and configuration
- Document the network installation and configuration

Additional Information — It might be useful to do a “high-level” introduction to the LVM and JFS file systems during this lecture. Students will need to be aware that some components can be installed on a JFS volume, but that volume, but that JFS is not a bootable file system. This may require that a JFS volume be manually formatted during the installation stage. A review of the *Quick Beginnings* sections covering this will be helpful for this task. Installation of Domino and WebSphere is all that is required; configuring and running of these additional server products is not required and should only be attempted by students (and instructors) that are familiar with the concepts of setting up a Web server and a Java servlet environment. Setting up and running these environments is covered in other classes.

Transition Statement — Now we look at an actual installation of Warp Server for e-business.

3.1 Installing OS/2 Warp Server for e-business

Instructor Topic Introduction

What students will do — Students will explore some of the ramifications of installation choices.

How students will do it — Lecture and instructor-led discussion.

What students will learn — Students will learn the flow of steps to install OS/2 Warp Server for e-business. They will learn what choices can be made at various steps, and the ramifications of those steps in later steps of the install. Points to be covered:

- Update installation diskettes
- Install, remove, and configure boot manager
- Install and format a bootable OS/2 Warp Server for e-business volume
- Install and configure basic hardware and software options
- Install and configure server components
- Create and name new partitions
- Create, modify, and format volumes
- Configure the server to function in the context of the larger network

How this will help students in their job — If a system administrator makes incorrect choices at certain stages of an installation, they may find themselves repeating some or all parts of the installation to achieve the desired system configuration. A foreknowledge of the steps assists in matching installation steps to the desired end configuration the first time through.

Server Packaging

Server

• 14 NLV packages

Server Upgrade

• 14 NLV packages

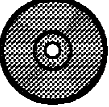

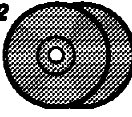
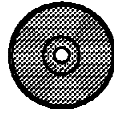
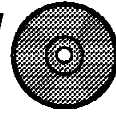

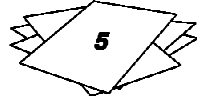
<p>One Language</p> <p>1</p> 	<p>One Language</p> <p>3</p> 	<p>All Languages</p> <p>2</p> 	<p>One Language</p> <p>1</p> 	<p>14 Languages</p> <p>1</p> 
<p>Server:</p> <ul style="list-style-type: none"> > OS/2 base and File Systems > UNI and SMP Kernels > LAN Server > Neighborhood Browser Enabler > MPTS > TCP/IP and DHCP/DDNS > SSL 3.2 > LAN Adapter (Subset) > 40-bit Encryption > Printer Drivers (Subset) > Device Drivers (Subset) > REXX > PPP Server > PSnS Management > Tivoli Management Agent > Java Virtual Machine 1.1.7 > Netscape Communicator* > HPFS386 "Fix Pak" > ART Registration > Online Library 	<p>Boot Diskettes</p> <p>One Language</p> <p>1</p>  <p>Quick Beginnings</p>	<p>Client Connect Pak (OS/2 Warp 4, Windows 9X, Windows NT 4.0, and DOS/Windows 3.1 Clients)</p> <ul style="list-style-type: none"> > Tivoli Management Agent > Feature Install > Network Transport Services > TCP/IP and Dynamic Services > File/print services > Logon Client > Remote Access > HTML Browser* > Java runtime <p>See Client Connect Pak Matrix for details</p>	<p>Netfinity 5.2</p> <ul style="list-style-type: none"> > IBM WebSphere Application Server 1.1 > Lotus Domino Go Webserver 4.6.2.6 	<p>Ts and Cs</p> <p>5</p> 

Figure 3-2. Server Packaging (ws971302)

Notes:

Instructor Notes:

Purpose —

Details —

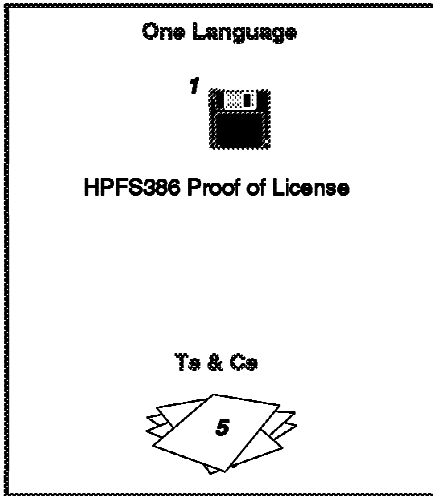
Additional Information —

Transition Statement —

Server Packaging

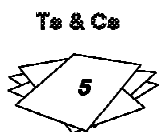
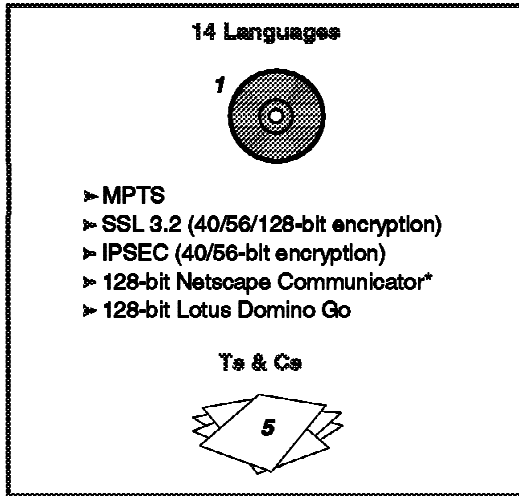
HPFS386 Feature

- 14 NLV packages



Security Feature

- Single package



- IPLA (16 languages)
- License Information (16 languages)
- Service and Support Statement (one language)
- Server Proof of Entitlement (one language)
- User Access Proof of Entitlement (one language)

Available on Internet

- DD Pak
- Printer Pak
- LAN Adapters
- Developer's Connection OS/2 Toolkit

Figure 3-3. Server Packaging (ws971304)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Hard Disk Requirements

OS/2 Warp Base Operating System -- default installation	96.7 MB
OS/2 Warp Base Operating System -- with all components	156.0 MB
File and Print Sharing Services	15.0 MB
TCP/IP Services	30.0 MB
Remote Access Services	5.9 MB
Netscape Communicator	11.0 MB
Tivoli Management Agent	1.5 MB
Personally Safe 'n Sound (Backup and Restore)	7.2 MB
Lightweight Directory Access Protocol Toolkit	4.2 MB
Advanced Print Services	54.0 MB
Multiple Protocol Transport Services	16.0 MB
First Failure Support Technology	0.1 MB
Online Books	10.0 MB

Figure 3-4. Hard Disk Requirements (ws971306)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

ClientPak (2 CD-ROMs)

- **Client Connect Pak**
- **(OS/2 Warp 4, Windows 9X,**
- **Windows NT 4.0, and**
- **DOS/Windows 3.1 Clients)**
- **Tivoli Management Agent**
- **Feature Install**
- **Network Transport Services**
- **TCP/IP and Dynamic Services**
- **File/print services**
- **Logon Client**
- **Remote Access**
- **HTML Browser***
- **Java runtime**

Figure 3-5. ClientPack (2 CD-ROMs) (ws971308)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Client Connect Pak Matrix

	OS/2 Warp 4	Windows 95	Windows NT 4.0	DOS/Win 3.1
System Management	Tivoli Agent CD 2	N/A	N/A	N/A
Feature Install	OS/2 Feature CD 1	N/A	N/A	N/A
Network Services	MPTS CD 1	Included in operating system	Included in operating system	LAN Support Program CD 2
IP Services	TCP/IP 4.2.1 CD 1	Dynamic IP Client CD 2	Dynamic IP Client CD 2	DOS LAN Services CD 2
File and Print Services	OS/2 File and Print Client CD 2	Included in operating system	Included in operating system	DOS LAN Services CD 2
Logon Services	OS/2 File and Print Client CD 2	Network Client for Windows 95 CD 2	Primary Logon Client CD 2	DOS LAN Services CD 2
Remote Access	LAN Distance CD 2	Included in operating system	Included in operating system	N/A
Browser	Netscape 4.04 CD 1	Included in operating system	Included in operating system	N/A
Java	Java Dev Toolkit CD 1	Java Dev. Toolkit CD 2	Included in operating system	N/A

Figure 3-6. Client Connect Pak Matrix (ws971310)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Year 2000 and Euro

OS/2 Warp Server for e-business is fully enabled to support upcoming Year 2000 (Y2K) and euro currency translations

Support for the euro sign as the currency symbol is available when you specify country information during the installation process

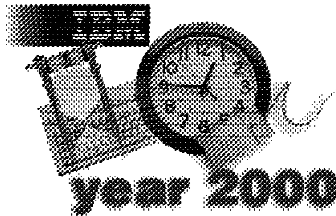


Figure 3-7. Year 2000 and Euro (ws971312)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Java Support

Java 1.17 Shipped with OS/2 Warp Server for e-business

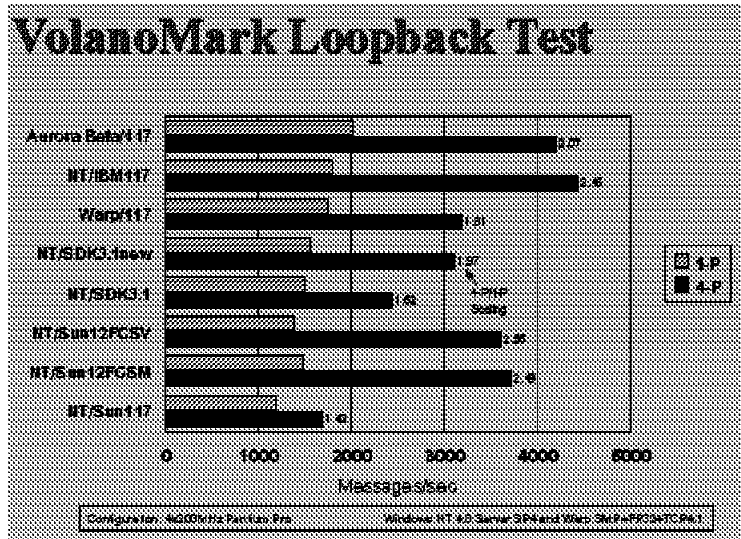


Figure 3-8. Java Support (ws971314)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

JFS Utilities

- Format
- Chkdsk
- Defrag
- Extend

Figure 3-9. JFS Utilities (ws971336)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

LVM (Replaces fdisk)

- Create a partition
- Delete a partition
- Bootable volumes
- Non-bootable volumes
- Changing a drive letter assigned to a volume
- Expanding a volume
- Set or change a volume name
- Delete a volume
- Hide a volume from OS/2
- Unhide a volume from OS/2

Refer to Chapter 3 of the *Network Administrator's Guide* and Chapter 5 of *Quick Beginnings: Installing OS/2 Warp Server for e-business*

Figure 3-10. LVM (Replaces fdisk) (ws971436)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

System Configuration (1 of 2)

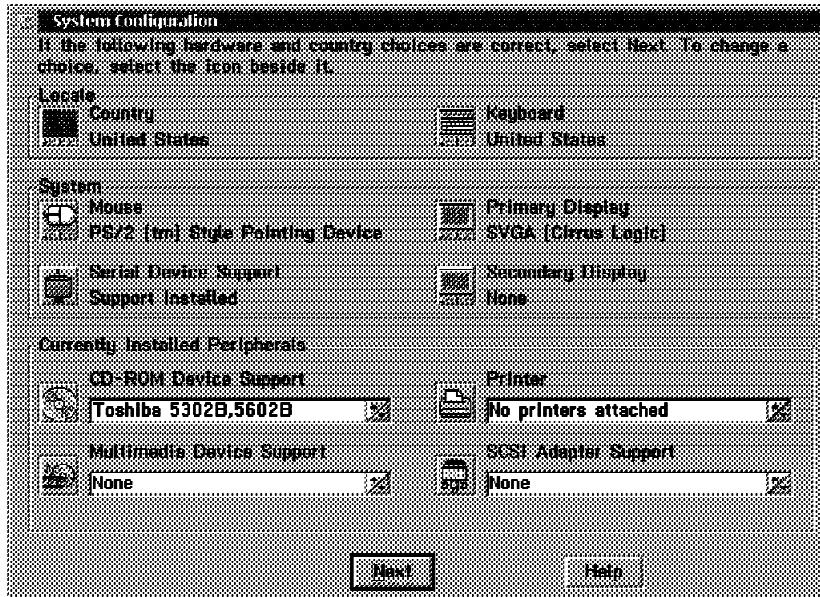


Figure 3-11. System Configuration (1 of 2) (ws971338)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

System Configuration (2 of 2)

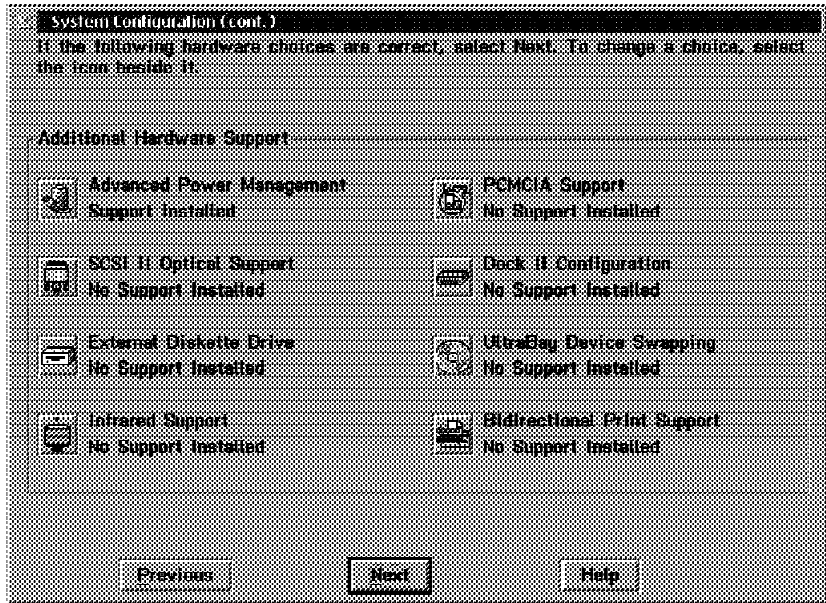


Figure 3-12. System Configuration (2 of 2) (ws971340)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Default Printer

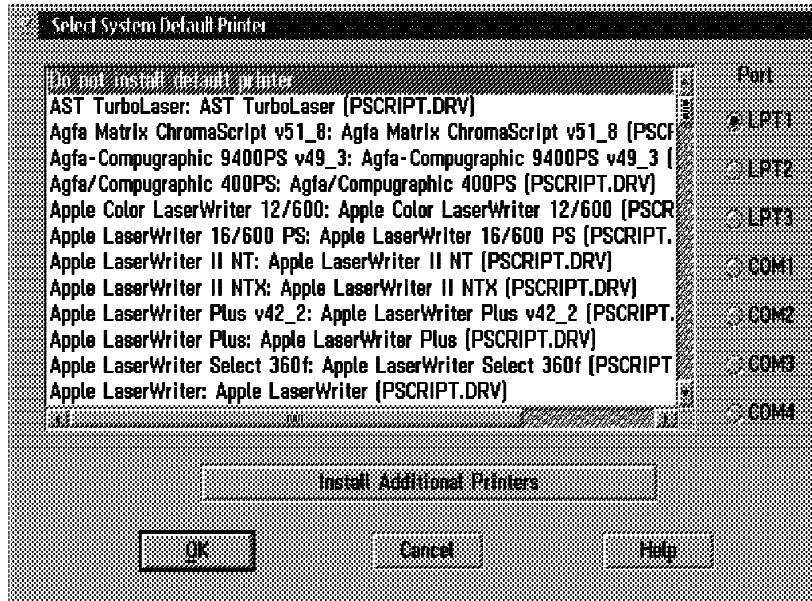


Figure 3-13. Default Printer (ws971342)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Primary Display Drivers

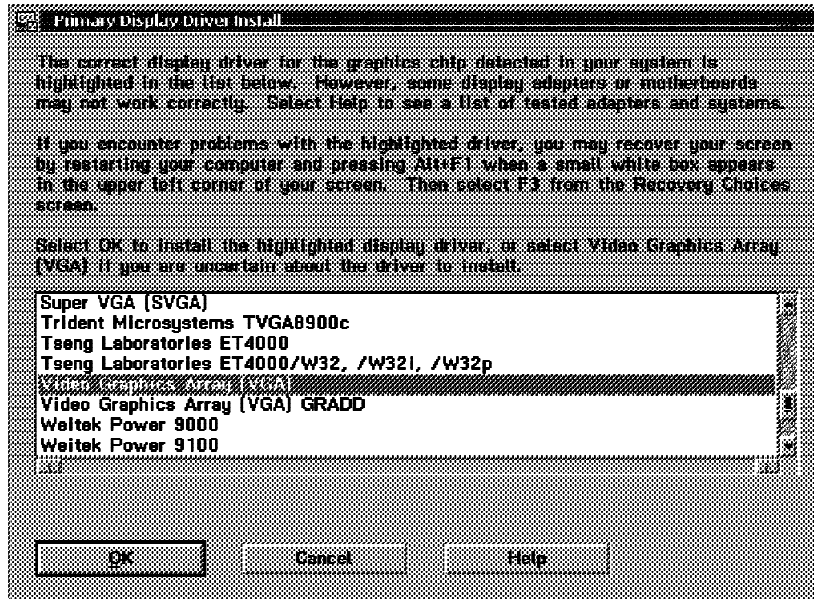


Figure 3-14. Primary Display Drivers (ws971344)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Setup and Installation (1 of 2)

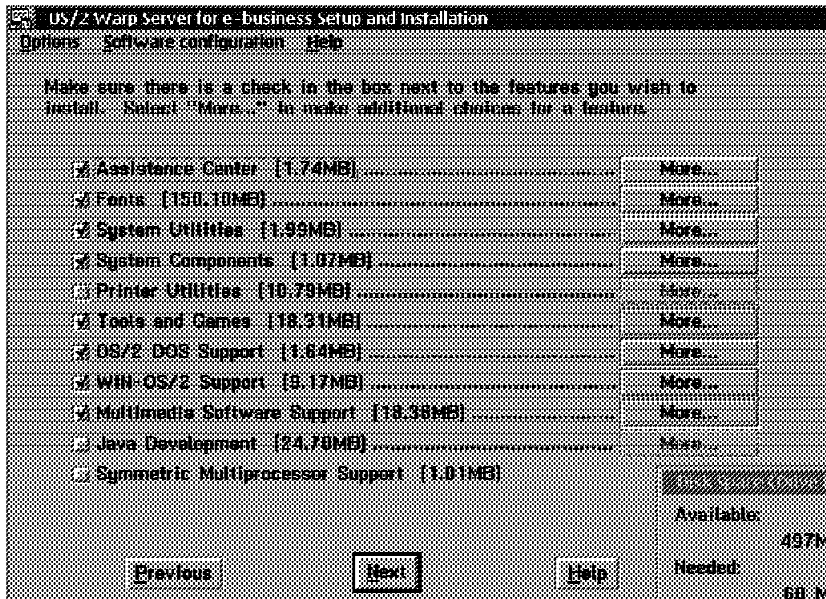


Figure 3-15. Setup and Installation (1 of 2) (ws971346)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Setup and Installation (2 of 2)

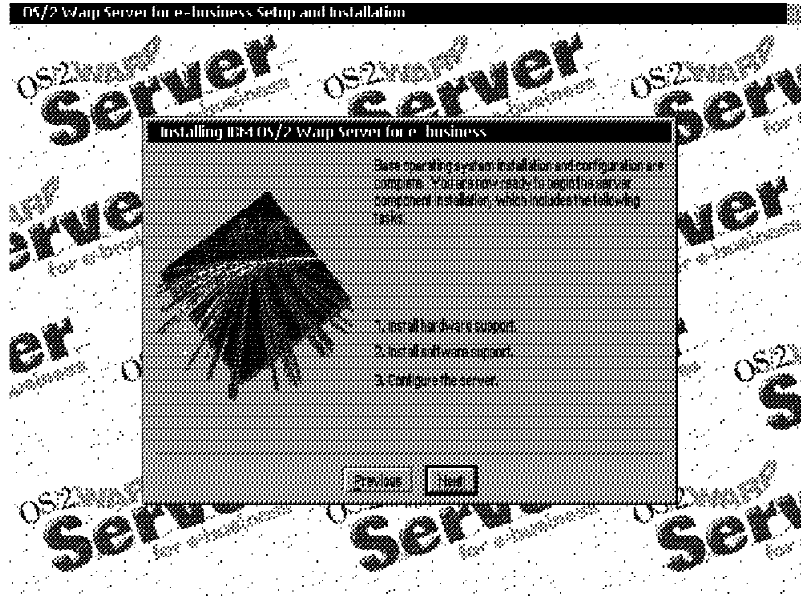


Figure 3-16. Setup and Installation (2 of 2) (ws971348)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Setup and Installation - Information

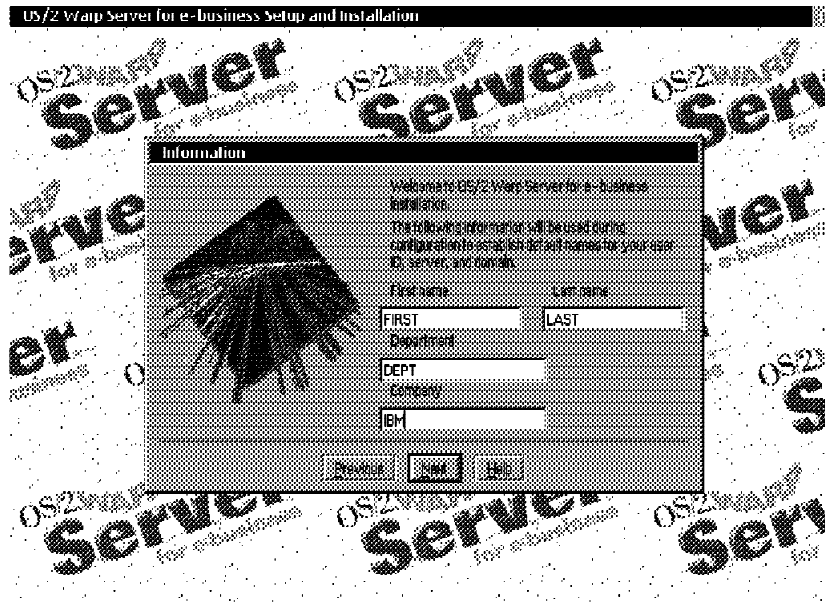


Figure 3-17. Setup and Installation — Information (ws971350)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Select Services

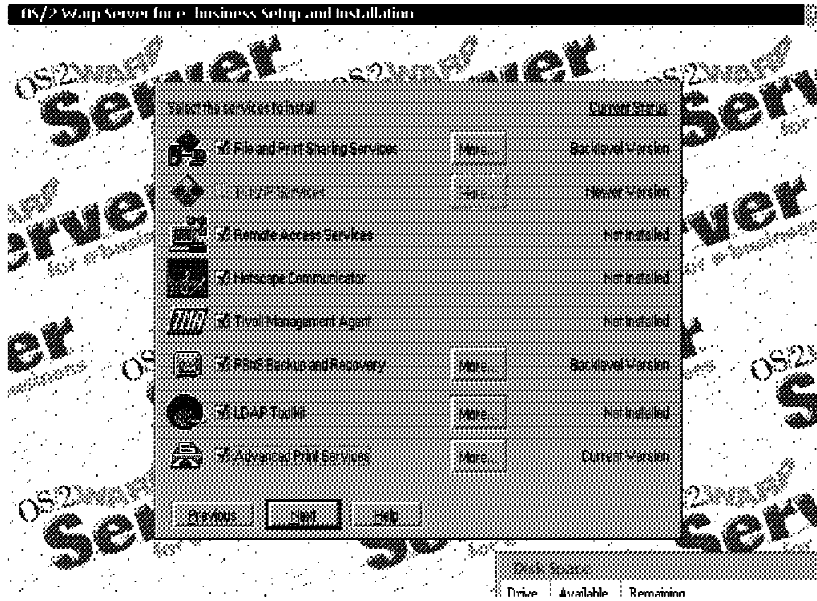


Figure 3-18. Select Services (ws971352)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

File and Print

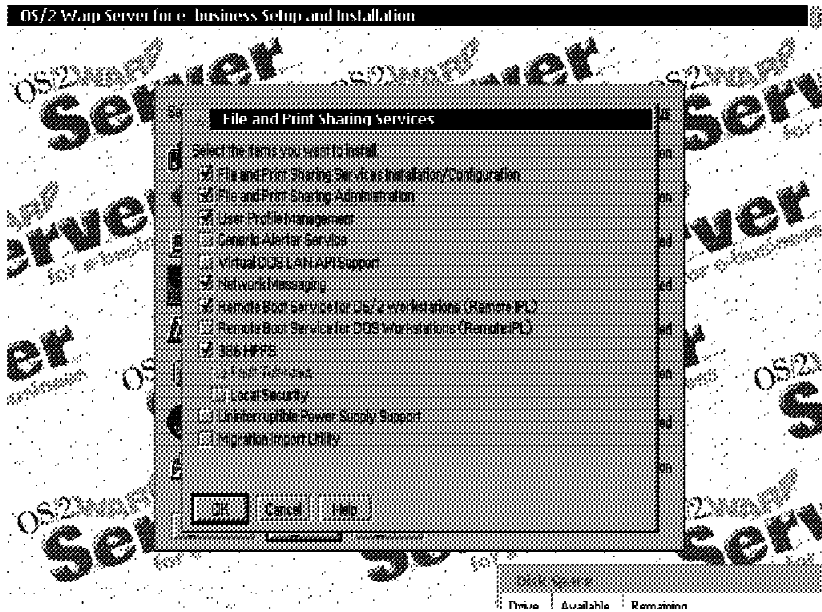


Figure 3-19. File and Print (ws971354)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Configuration

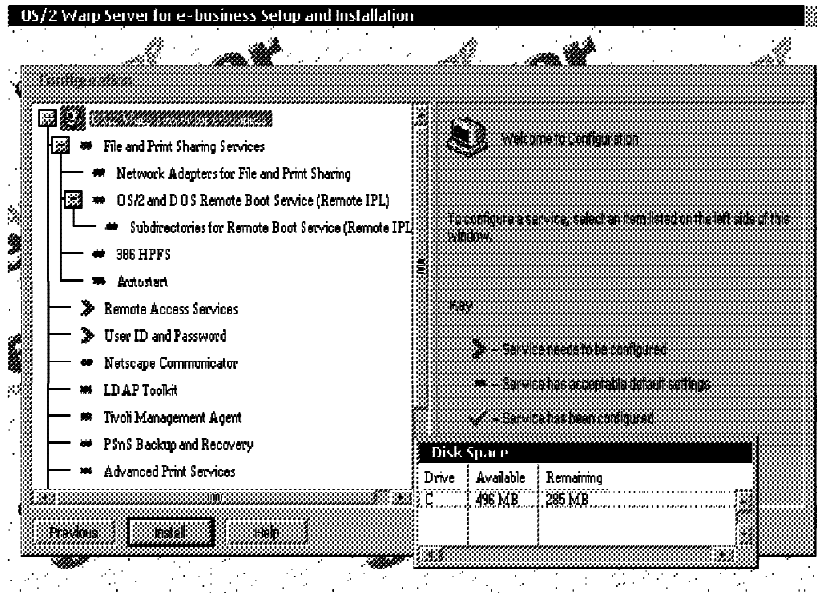


Figure 3-20. Configuration (ws971356)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

File and Print

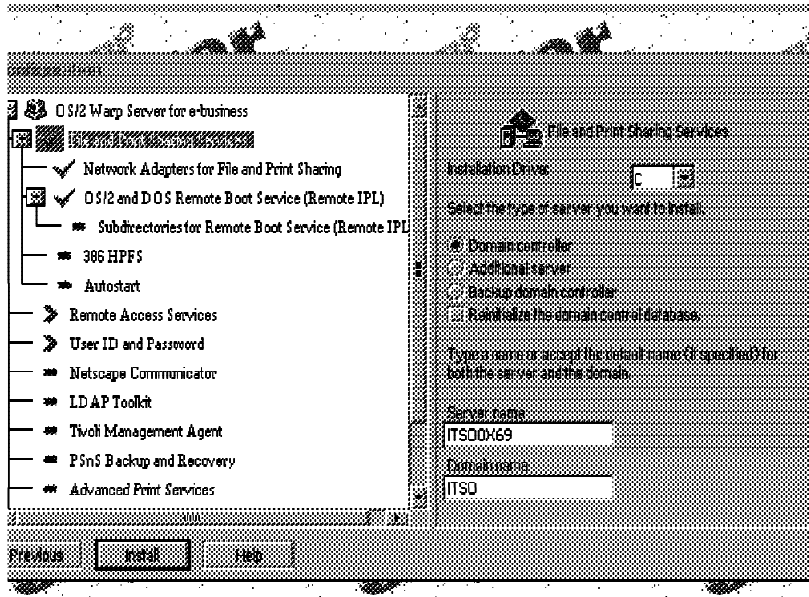


Figure 3-21. File and Print (ws971358)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Network Adapters

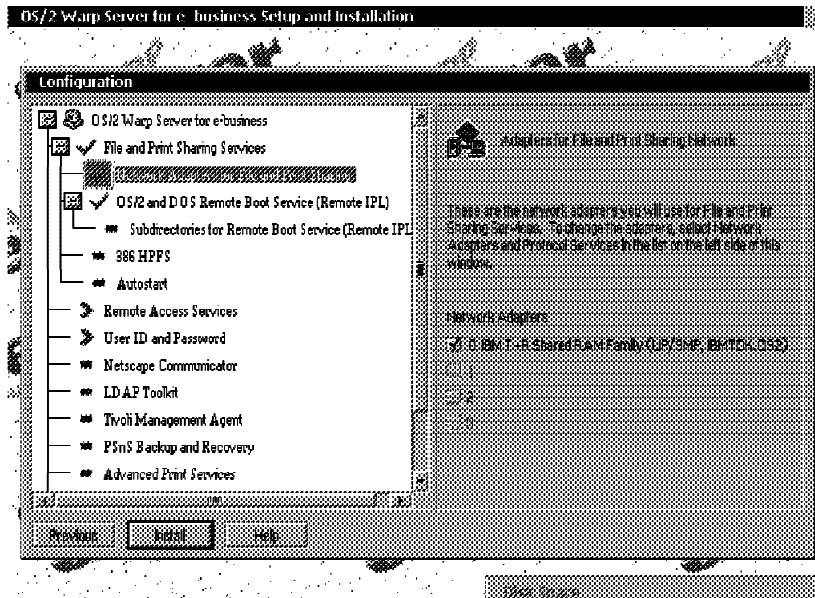


Figure 3-22. Network Adapters (ws971360)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Remote IPL (1 of 2)

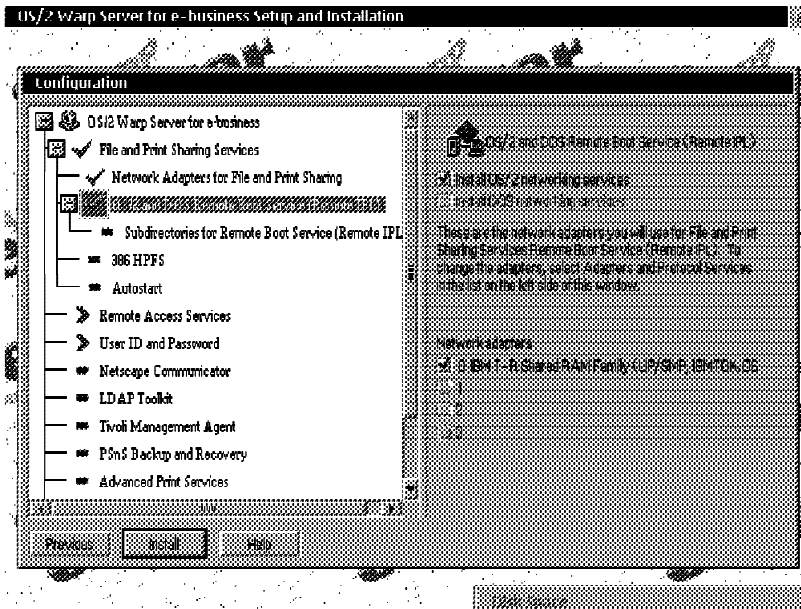


Figure 3-23. Remote IPL (1 of 2) (ws971362)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Remote IPL (2 of 2)

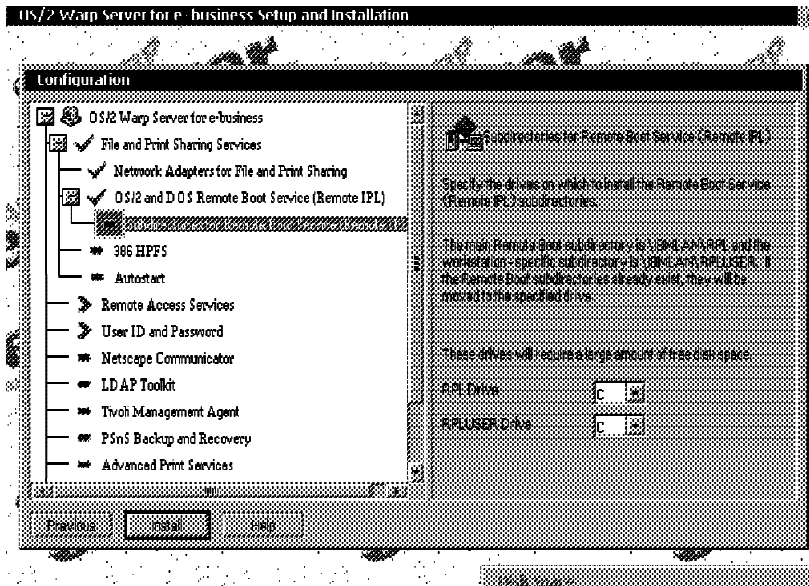


Figure 3-24. Remote IPL (2 of 2) (ws971364)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

386HPFS

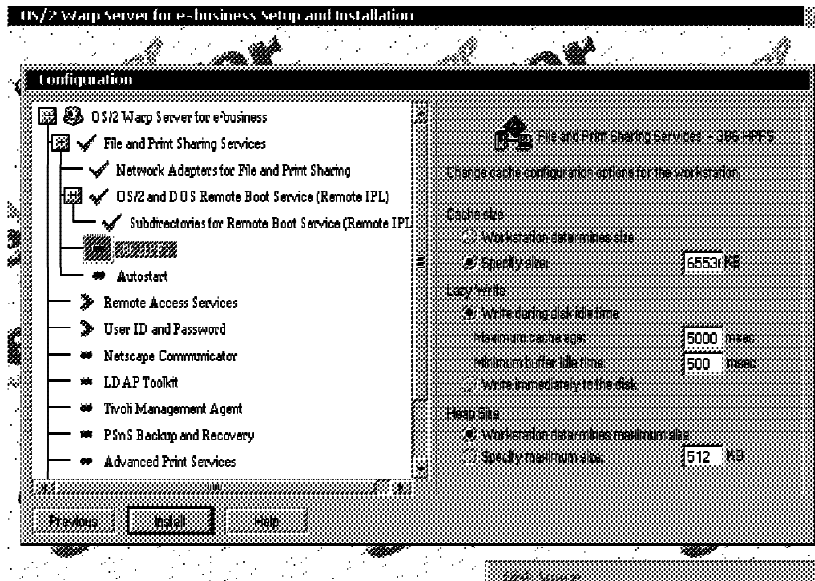


Figure 3-25. 386HPFS (ws971366)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Autostart

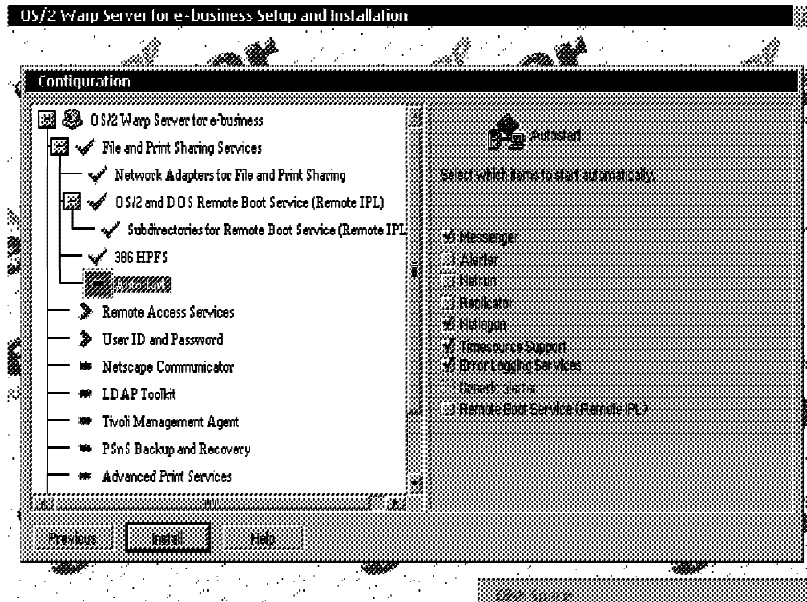


Figure 3-26. Autostart (ws971368)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Remote Access Services

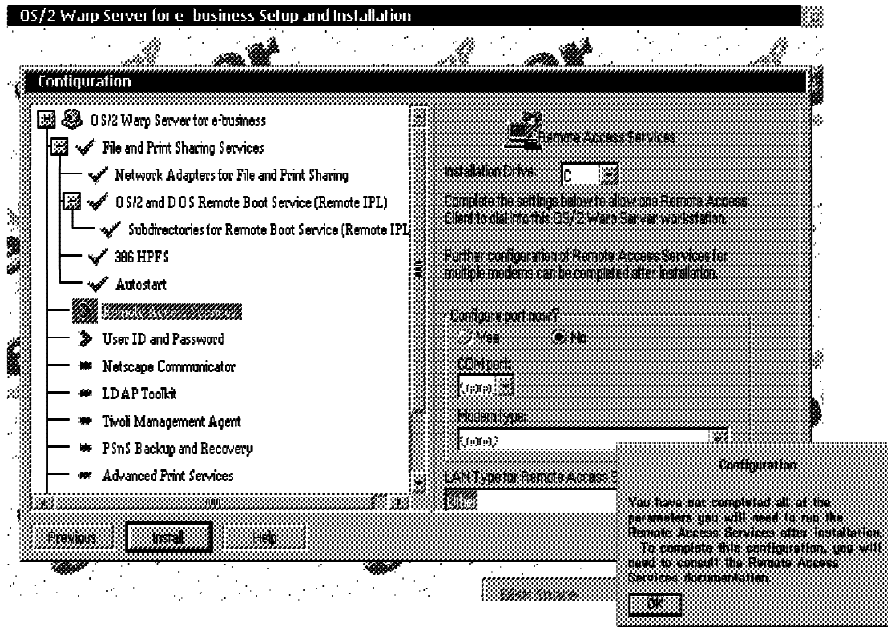


Figure 3-27. Remote Access Services (ws971370)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Administrator ID / Password

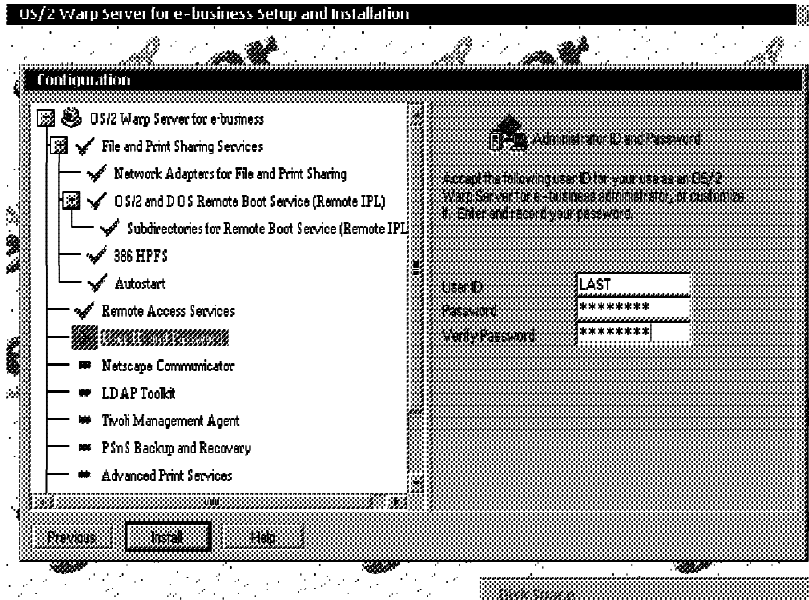


Figure 3-28. Administrator ID / Password (ws971372)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

TCP/IP Services

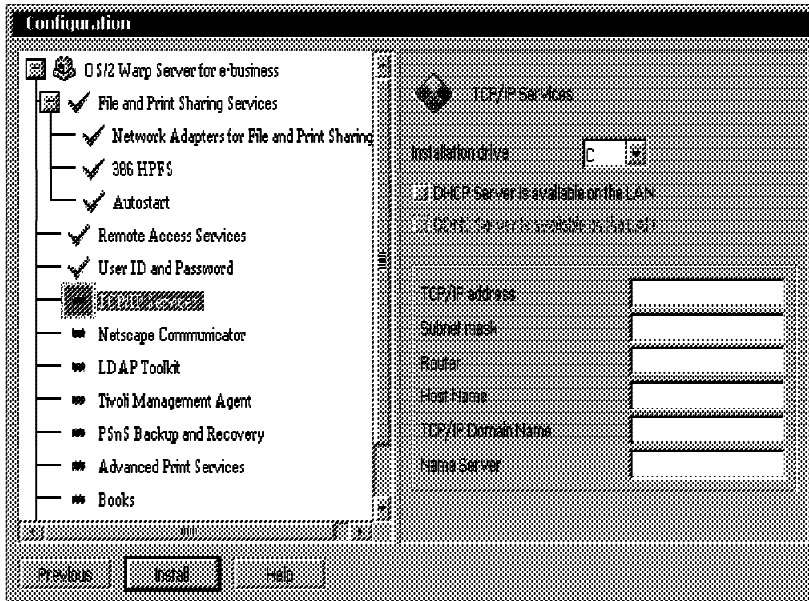


Figure 3-29. TCP/IP Services (ws971374)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Netscape Communicator

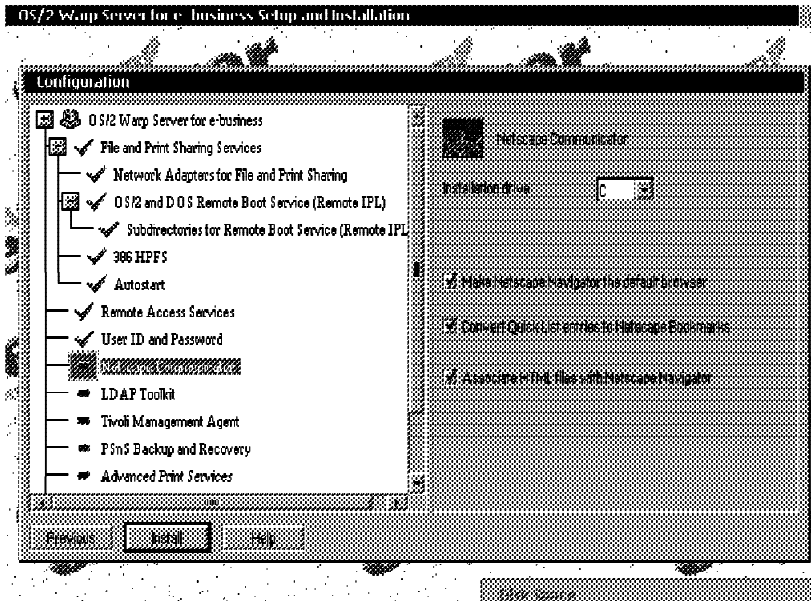


Figure 3-30. Netscape Communicator (ws971376)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

LDAP Toolkit

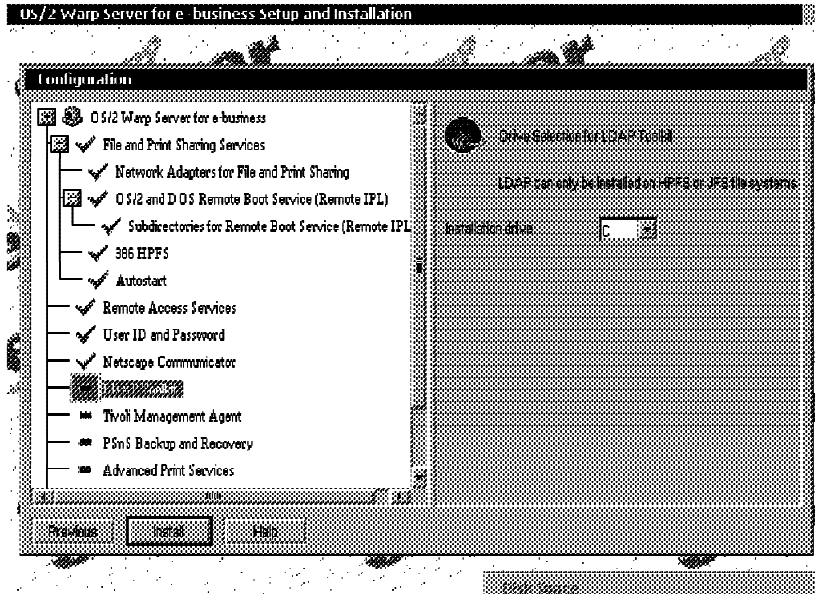


Figure 3-31. LDAP Toolkit (ws971378)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Tivoli Management Agent

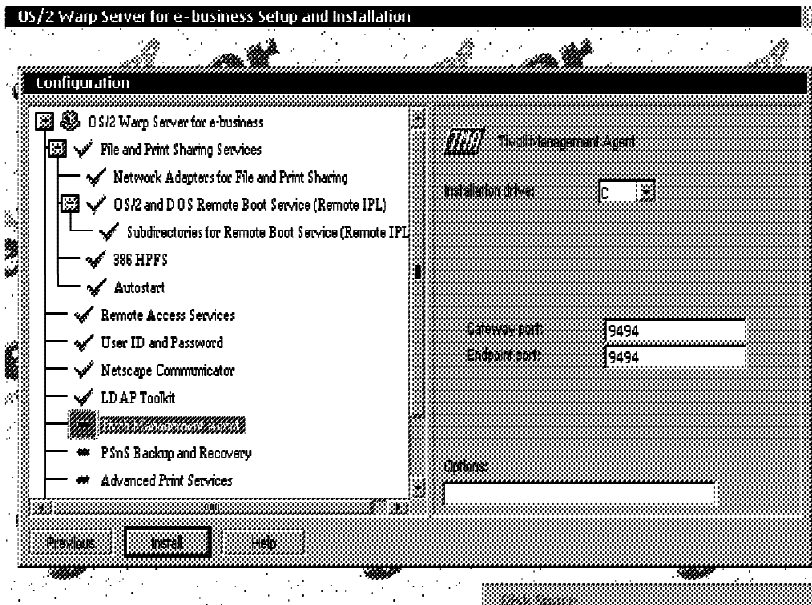


Figure 3-32. Tivoli Management Agent (ws971380)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Backup and Recovery (PSnS)

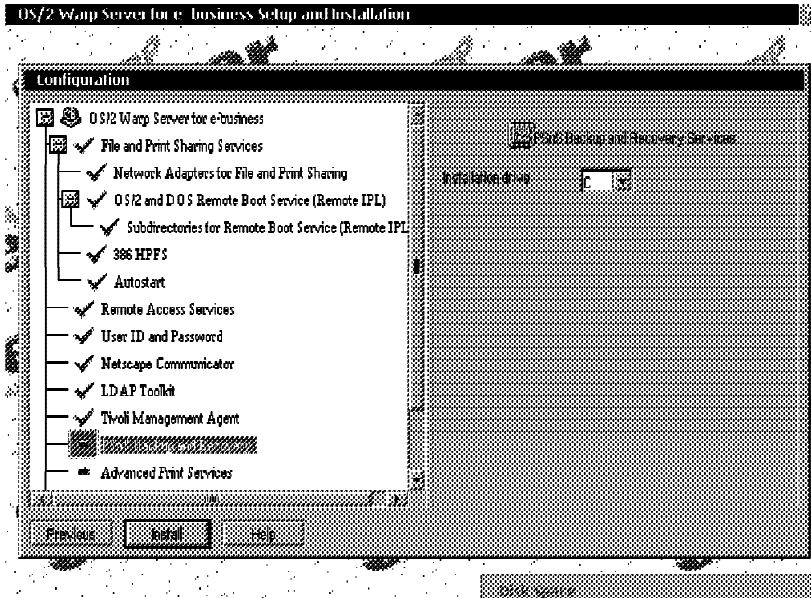


Figure 3-33. Backup and Recovery (PSnS) (ws971382)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Advanced Print Services

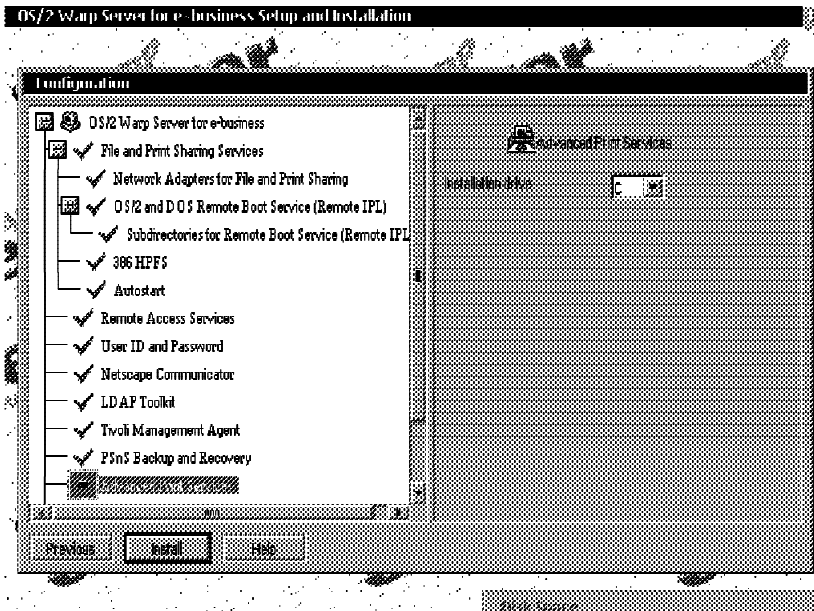


Figure 3-34. Advanced Print Services (ws971384)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Books

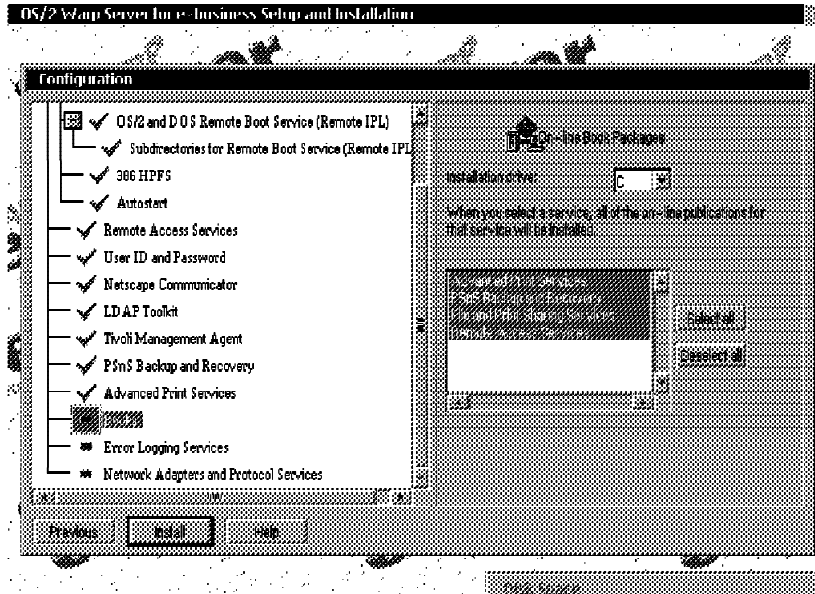


Figure 3-35. Books (ws971386)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Error Logging

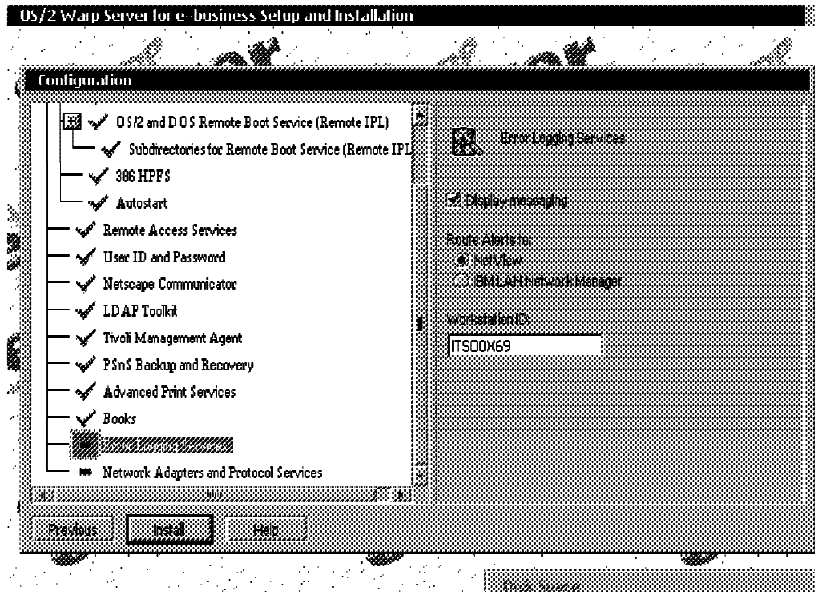


Figure 3-36. Error Logging (ws971388)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Adapter and Protocol Services

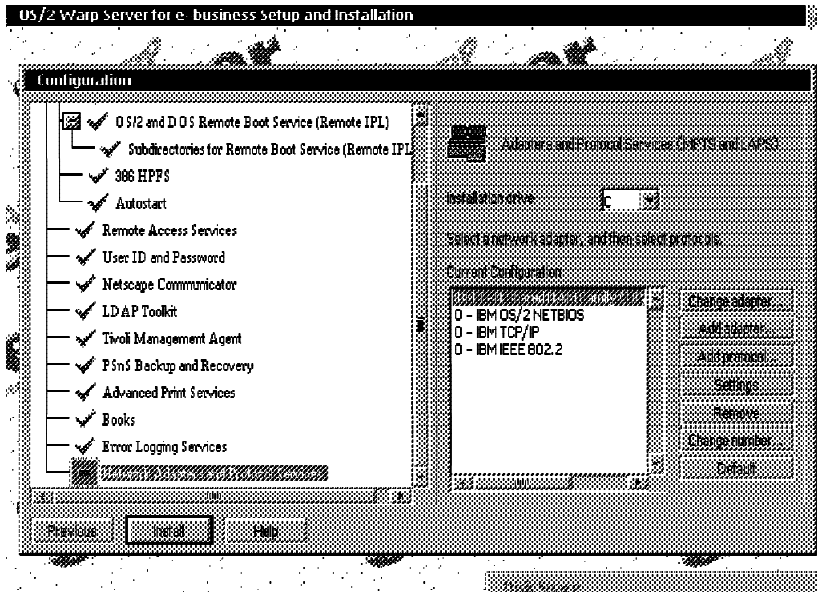


Figure 3-37. Adapter and Protocol Services (ws971390)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Configuration Complete

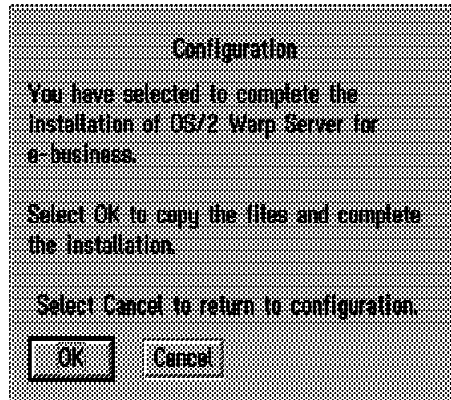


Figure 3-38. Configuration Complete (ws971392)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Tuning Assistant

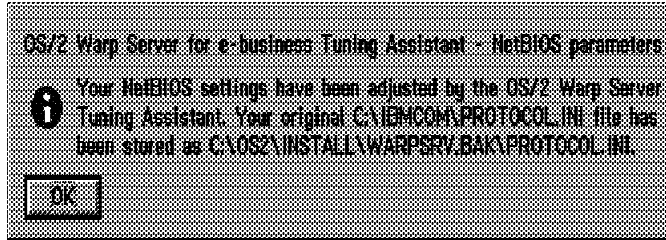


Figure 3-39. Tuning Assistant (ws971394)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

3.2 Installing Additional Server Applications

Instructor Topic Introduction

What students will do — Students will become familiar with the installation of Domino and WebSphere products.

How students will do it — Lecture and instructor-led discussion.

What students will learn — Students will learn the steps involved in installing Domino and WebSphere.

- Install Lotus Domino
- Install IBM WebSphere

How this will help students on their job — Domino and WebSphere are e-business enabling products shipped with OS/2 Warp Server for e-business. Administrators should be familiar with installing these products.

Installing Additional Components

- MPTS Strong Encryption
 - Security features CD 1
 - SSL IPSEC Libraries
 - 56/128 bit encryption
- Lotus Domino Go Webserver
 - Security features CD 2
 - Install before Websphere
- IBM WebSphere
 - Security features CD 2
 - Uninstall Go Java Servlet Component
 - Update Java 1.1.7

Figure 3-40. Installing Additional Components (ws971396)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Unsupported Tools

- MPTS Applets (\CID\SERVER\MPTS\UTILITY\APPLETS)
 - NBJDSTAT
 - DTF7
 - MCL
 - SNIFFLE
 - NETPING
 - LAPSDUMP
 - MAPNAME
 - OS2SNIFF
 - NB64K
 - NETTRACE

Figure 3-41. Unsupported Tools (ws971398)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Productivity Aids (\CID\SERVER\IBMLS\IBM500P1)

- SMBTOOL
- ACM
- QMC
- RDRDEBUG
- FINDNAME
- SNAPDF
- SNAPDUMP
- NCBSTAT
- NETSESS2

Figure 3-42. Productivity Aids (\CID\SERVER\IBMLS\IBM500P1) (ws9713a0)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

3.3 Testing and Documenting the Network Installation and Configuration

Instructor Topic Introduction

What students will do — Students will explore requirements for testing each of the features of an installation, and what files or data is needed to document the installation.

How students will do it — Lecture and instructor-led discussion.

What students will learn — Students will learn what procedures are needed to test each of the features of an installed system, and what sources of configuration documentation are available for each of the features selected during initial install. Students will learn how to create and test emergency boot diskettes that may be required in disaster recovery.

- Backup and print critical files
- Create emergency boot diskettes

How this will help students on their job — Basic testing of installed features are required as part of server installation. Documentation of the installed features are required for migration planning, feature additions, and disaster recovery.

Back up Critical Files

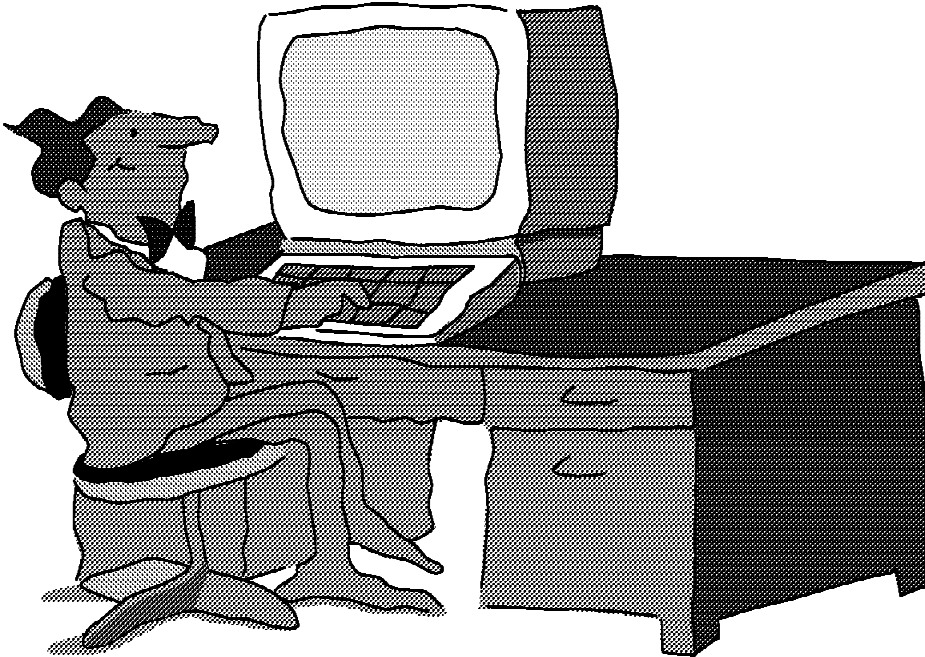


Figure 3-43. Back up Critical Files (ws9713a2)

Notes:

Back up critical files

- Back up DCDB
- Back up critical files
 - CONFIG.SYS
 - STARTUP.CMD
 - IBM386FS\HPFS386.INI
 - IBMCOM\PROTOCOL.INI
 - IBMCOM\RFCNAMES.LST
 - IBMCOM\RFCBCST.LST
 - IBMLAN\IBMLAN.INI
 - IBMLAN\RPL\RPL.MAP
 - MPTN\BIN\MPTSTART.CMD
 - MPTN\BIN\SETUP.CMD
 - MPTN\ETC\RESOLV2
 - MPTN\ETC\HOSTS
 - MPTN\ETC\NAMEDB\NAMED.BT
 - MPTN\ETC\NAMEDB\NAMED.CA
 - MPTN\ETC\NAMEDB\NAMED.REV
 - MPTN\ETC\NAMEDB\SYSLOG.CNF

- TCPIP\BIN\TCPSTART.CMD
- Back up ACLs
 BACKACC
- Back up Directory Limits
 NET DASD

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Emergency Boot Disk

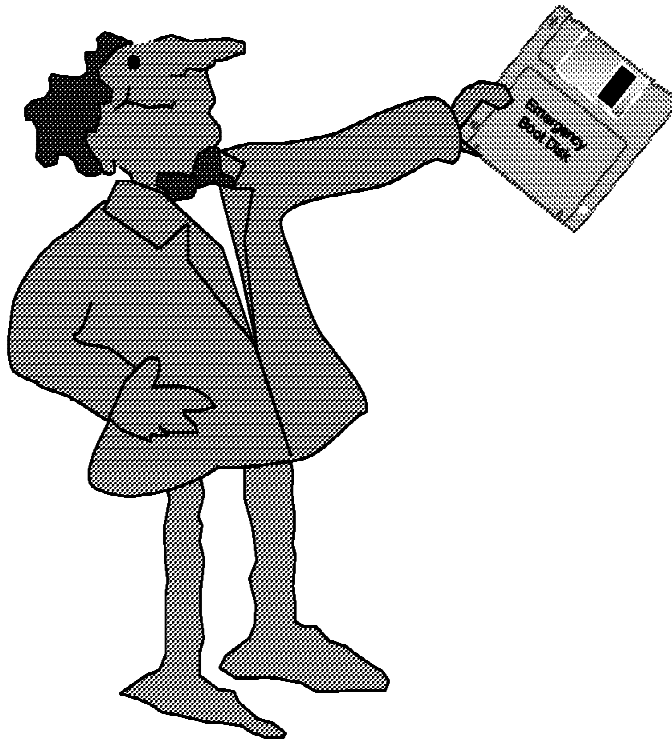


Figure 3-44. Emergency Boot Disk (ws9713a4)

Notes:

Create emergency boot diskettes

- BOOTDISK.EXE
- HPFS386 considerations
- BOOTOS2 (<http://hobbes.nmsu.edu/>)

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Unit Summary

You should now be able to:

- Update installation diskettes
- Install, remove and configure boot manager
- Install and format a bootable OS/2 Warp Server for e-business volume
- Install and configure server components
- Create and name new partitions
- Create, modify, and format volumes
- Configure the server to function in the context of the larger network
- Back up and print critical files
- Create emergency boot diskettes
- Install Lotus Domino
- Install IBM WebSphere
- Test the network installation and configuration
- Document the network installation and configuration

Figure 3-45. Unit Summary (ws9713zz)

Notes:

Instructor Notes:

Purpose —

Details —

Transition Statement —

Unit 4. Administering Common Tasks in OS/2 Warp Server for e-business

What This Unit Is About

This unit covers the administration tasks that are most frequently used in installations. More specialized tasks are covered in the following unit.

What You Should Be Able to Do

After completing this unit, you should be able to:

- Perform initial network administration tasks checklist
- Start, stop, and pause server services
- Access the network from various systems
- Manage domains
- Define and share network resources
- Create and apply Access Control Profiles
- Manage network printing
- Define and manage users and groups
- Manage and add volumes and partitions
- Implement backup and recovery
- Manage network security
- Create and manage server applications

How You Will Check Your Progress

Accountability:

- Lab exercises

References

Network Administrators Guide

Performance Tuning Guide

Command Reference

Objectives

After completing this unit, you should be able to:

- Perform initial network administration tasks checklist
- Start, stop, and pause server services
- Access the network from various systems
- Manage domains
- Define and share network resources
- Create and apply access control profiles
- Manage network printing
- Define and manage users and groups
- Manage and add volumes and partitions
- Implement backup and recovery
- Manage network security
- Create and manage server applications

Figure 4-1. Objectives (ws971400)

Notes:

Instructor Notes:

Purpose — This unit covers the administration tasks that are most frequently used in installations.

Details — A wide variety of tasks are covered, reinforced by labs.

- Perform initial network administration tasks checklist
- Start, stop, and pause server services
- Access the network from various systems
- Manage domains
- Define and share network resources
- Create and apply Access Control Profiles
- Manage network printing
- Define and manage users and groups
- Manage and add volumes and partitions
- Implement backup and recovery
- Manage network security
- Create and manage server applications

Additional Information – Wherever possible, instructors should use live demonstrations to present the topic covered.

Transition Statement — Some administration tasks are common to many installations. We will cover a variety of these task now. Less frequently used tasks will be covered in the next unit.

4.1 Perform Initial Network Administration Tasks

Instructor Topic Introduction

What students will do — Students will review initial administration procedures. Each of these procedures will be covered in more detail in the following topics.

How students will do it — Lecture and instructor-led discussion.

What students will learn — Students will learn which procedures are commonly required for administration of OS/2 Warp Server for e-business. Many of them are procedures that they will typically use immediately after installing a system.

- Create spooler queues and printers on the appropriate servers
- Log on to the domain controller, start the domain controller, and define additional servers on the network
- Disable (and re-enable) user logon while you set up the domain (optional)
- Define shared resources (directories, printers, and serial devices)
- Define access control profiles for the resources
- Install and define public applications to be shared on the appropriate servers
- Define users and groups
- Assign resources to be made available to users during logon
- Establish a plan to backup the domain controller database (DCDB) regularly
- Print/save the domain definition for archival purposes

How this will help students in their job — These procedures are the ones most frequently used for file and print servers. All administrators should be familiar with these procedures. These procedures are usually required to be performed immediately after installation and are sometimes included as part of the installer tasks.

Initial Network Administration Tasks

- Create spooler queues and printers on the servers
- Start the domain controller, logon to the DC, and define additional servers
- Disable and re-enable user logon (optional)
- Define shared resources (directories, printers, and serial devices)
- Define access control profiles for the resources
- Create public applications definitions to be shared on the network
- Define users and groups
- Assign resources to be made available to users during logon
- Plan to backup the domain controller database (DCDB) regularly
- Print/save the domain definition

Figure 4-2. Initial Network Administration Tasks (ws971402)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

4.2 Starting, Stopping, and Pausing Server Services

Instructor Topic Introduction

What students will do — Students will review stopping and starting various services.

How students will do it — Lecture and instructor-led discussion followed by lab.

What students will learn — The purpose of various server services, the reasons for controlling them, and the procedures to start and stop these services:

- Requester
- Server
- Messenger
- Logon
- Alerter
- Network Neighborhood Browser
- TimeSource
- Netrun
- Domain Controller DB Replication
- Replication

How this will help students in their job — Starting and stopping services is required for some administration procedures.

Managing Network Services

- **Alerter**
- **DCDB Replicator**
- **Generic Alerter**
- **LSserver**
- **Messenger**
- **NetLogon**
- **Netrun**
- **Network Neighborhood Browser Enabler**
- **Peer**
- **Remote IPL**
- **client**
- **Server**
- **Timesource**
- **UPS**

Figure 4-3. Managing Network Services (ws971404)

Notes:

Managing Network Services

Alerter Notifies selected user IDs when problems occur. It also notifies Generic Alerter service when certain LAN problems are detected or anticipated. This service cannot be paused.

DCDB Replicator Copies the domain control database from a primary domain controller to one or more backup domain controllers.

Generic Alerter Enables the server to build and send Systems Network Architecture (SNA) alerts. The Alerter service notifies the Generic Alerter service when certain LAN problems occur. This service cannot be paused.

LSserver Provides DOS LAN Services support and logical server functions. The logical server supports remote requests from clients for activities such as spooling, querying users, logon, and logoff. The default value for LSserver is to start when OS/2 Warp Server or LAN Server is installed. The user should never change the default. If you stop LSserver, the Server service automatically stops. Therefore, this service should never be stopped and cannot be paused.

- Messenger** Supports the receiving of messages at a client or server. This service cannot be paused.
- NetLogon** Copies the master user and group definitions file located on the domain controller to network servers. This service is available only on servers. In order for the NetLogon service to replicate user and group definitions across servers in a domain, digit three of the `srvheuristics` parameter (on domain controllers) and digit eight of the `wrkheuristics` parameter (on additional servers) must be left at their default values. If you change the defaults for these parameters, user and group data may not be replicated from the domain controller, resulting in unknown user IDs or group IDs on the additional servers. Refer to Domain User and Group Definitions on page 44 for more information on using the NetLogon service.
- Netrun** Handles requests for running programs remotely on a server.
- Network Neighborhood Browser Enabler** Allows OS/2 Warp Server to function as a master browser for Windows Clients. The master browser function provides Windows 95 and Windows NT clients the ability to view the domains LAN Server machines and their resources via the Network Neighborhood object.
- Peer** Allows one client to share resources with another. This service gives a client some of the capabilities of a server. You can administer a Peer server remotely. For information, see the Command Reference.
- Remote IPL** Allows the Server service to support remote initial program load (remote IPL) of workstations. This service corresponds to the Remoteboot section of the `IBMLAN.INI` file.
- Replicator** Copies files from a master location on a server to one or more servers or clients requiring a copy of the data. This service cannot be paused. Client redirects requests for files, printers, and serial devices from on workstation to another workstation.
- Server** Receives and responds to network requests for files, printers, and serial devices. The service checks the requests against its database of user IDs and access permissions.
- Timesource** Designates a server as a source of a reliable time and date which other workstations on the network can synchronize. The Timesource service does not keep time. It allows other workstations on the network to identify a server with a reliable clock. The default value for the Timesource service is to start on domain controllers when OS/2 Warp Server or LAN Server is installed. This service cannot be paused.
- UPS** Provides protection against power failure. If power is interrupted, the UPS service keeps the server running until the service can shut down the server safely or until an administrator stops the server.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Network Service Status

The text below shows network service status types.

Status	Meaning
Started and Active	The service is running normally
Not started	The service has not been started
Started and paused	The service has been stopped temporarily
Started with pause pending	The service is about to pause
Started with continue pending	The service is about to continue after being paused
Stopping	The service is about to stop
Starting	The service is about to start

Figure 4-4. Network Service Status (ws971406)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Guidelines for Stopping and Pausing Network Services

Keep the following in mind when stopping and pausing network services:

- When the Messenger service is stopped on a workstation, that workstation can no longer receive messages or alerts.
- When the Requester service is stopped on a server, the server and OS/2 Warp Server or LAN server program also stops. Users lose access to that server's network resources. If any user is logged on at that server, stopping the Requester service logs them off. After the Server service stops on a server, that workstation can function only as a client and can no longer share resources with users.
- Pausing a client temporarily disables use of shared resources, but you are not disconnected from those resources. If you pause a server, no new requests to use the resources at that server are accepted. However, pausing a server does not affect files that are currently open or outstanding requests to use resources.

Figure 4-5. Guidelines for Stopping and Pausing Network Services (ws971408)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Stopping and Pausing a Network Service

- NetLogon
- Netrun
- Peer
- Requester
- Server

Figure 4-6. Stopping and Pausing a Network Service (ws971410)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

4.3 Accessing the Network

Instructor Topic Introduction

What students will do —Students will review the various options available for logging onto the network.

How students will do it —Lecture and instructor-led discussion.

What students will learn —Students will learn how to log on to the network domain controller locally and from other servers and requesters. They will learn how to log on to alternate domains. They will also learn how to log on to a local server when the domain controller may not be available.

How this will help students in their job —Being able to logon to the network or an individual server is required for effective performance of administrator tasks.

Command Line Access

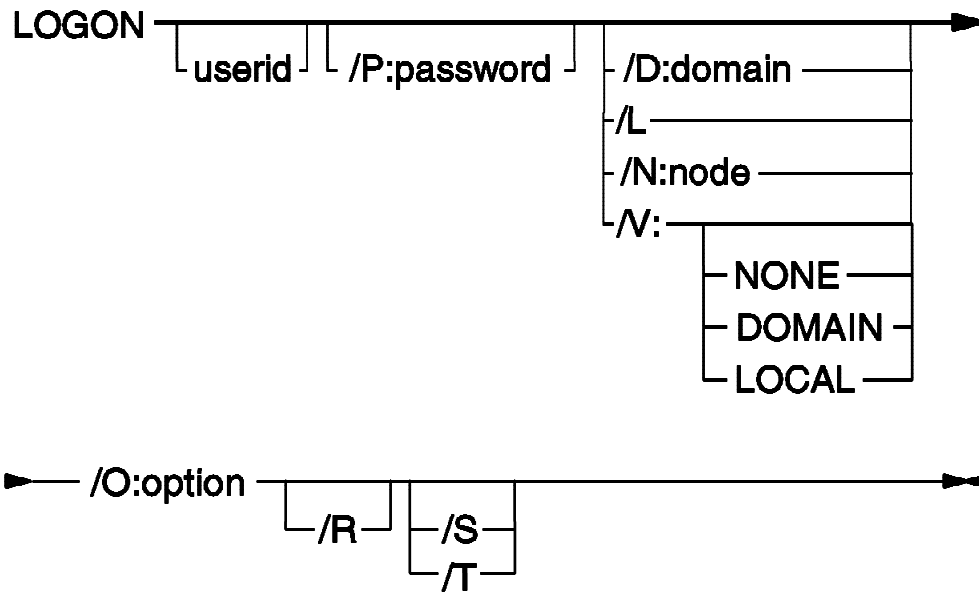


Figure 4-7. Command Line Access (ws971412)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

LAN Logon (1 of 2)

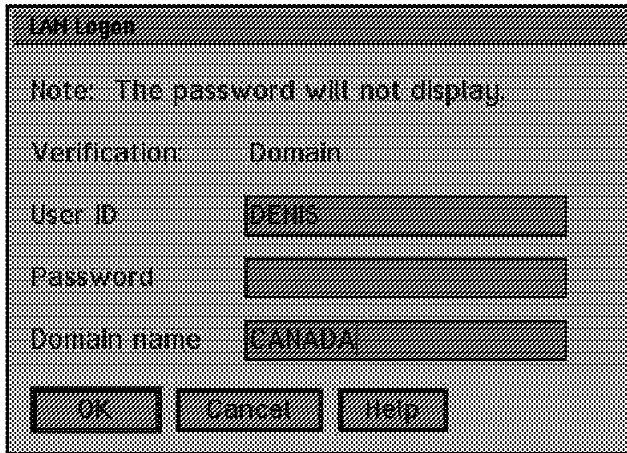


Figure 4-8. LAN Logon (1 of 2) (ws971414)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

LAN Logon (2 of 2)

- User account defined on the other domain
 - Password should be identical
- Access permissions on the other domain
- othdomains =

Figure 4-9. LAN Logon (2 of2) (ws971416)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

4.4 Managing Domains

Instructor Topic Introduction

What students will do —Review setting up and managing multiple servers in a domain and across multiple domains.

How students will do it —Lecture and instructor-led discussion followed by lab.

What students will learn —How to set up and manage a domain, including multiple servers, and how to manage resources across multiple domains.

- Set up domain controller
- Set up backup domain controllers
- Set up additional servers
- Set up stand-alone servers (one that does not belong to a domain)
- Back up and restore the Domain Controller Database
- Update, delete, display, and print server definitions
- Start and stop the domain controller
- Manage more than one domain

How this will help students in their job —Managing multiple servers in a domain and resources across multiple domains is a required part of administrator tasks.

Setup the Domain

- Installation on all servers
- Administrator logon
- Define Additional servers
- Start Backup Domain Controllers
- Start Additional servers
- Disable User logons
 - NET PAUSE NetLogon
- Define users and groups
- Define shared resources
- Define access control profiles
- Install and define public applications
- Configure Remote IPL
- Assign logon assignments
- Plan to back up the domain controller database
- Enable User logon
 - NET CONTINUE NetLogon
- Print/save the Domain Controller Database

See Chapter 2 of the Network Administrator's guide

Figure 4-10. Setup the Domain (ws971418)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

4.5 Managing Users and Groups

Instructor Topic Introduction

What students will do —Review concepts and procedures of defining users and assigning users to a group.

How students will do it —Lecture and instructor-led discussion followed by lab.

What students will learn —How to define users and groups, how to define the privileges available to these users, and how to assign users into logical groups for ease of managing users access to resources based on these groupings.

- Add users and groups
- Delete users and groups
- Update users and groups
- Manage users
- Manage groups

How this will help students in their job —Managing users, the privileges assigned to users, and the logical groupings that a user may be assigned to, is an essential part of an administrators tasks.

USERS

- **Features**
 - Up to 16,000 users per domain
 - User and group ID cloning
 - Drag and drop enablement
 - Home directories for users
 - Directory limits on users
- **Managed through NET.ACC**
- **Changes propagated to additional servers**
- **UPM (local)**
- **Restricted names**

-ADMINS	- SERVERS
-GROUPID	- SYSASID
-GUESTS	- USERS
-LOCAL	- IBM ???
-PUBLIC	- SQL???
-RPLGROUP	- SYS???
- **Logon assignments**
- **Public applications**
- **Privileged operators**

Figure 4-11. USERS (ws971430)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

GROUPS

- 247 group IDs per domain (256-9 reserved)
- Restricted names
 - USERS
 - ADMINS
 - GROUPID
 - SERVERS
 - LOCAL
 - GUESTS
 - RPLGROUP
 - SYSASID
 - PUBLIC

Refer to Chapter 5 of the *Network Administrator's Guide*

Figure 4-12. GROUPS (ws971432)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

4.6 Defining Access Control Profiles

Instructor Topic Introduction

What students will do —Review access control profiles and how they can be used to manage users access to resources.

How students will do it —Lecture and instructor-led discussion followed by lab.

What students will learn —How to define and apply access control profiles against network resources.

- Create access control profiles with aliases
- Create access control profiles without aliases
- Update access control profiles with aliases
- Update access control profiles without aliases
- Delete access control profiles with aliases
- Delete access control profiles without aliases

How this will help students in their job —Managing access rights for network resources is an essential part of an administrators tasks.

Access Control Profile

- Independent of alias or netname
- File, Directory, Root
- Propagation
- User or Group (64 max)
 - None (N)
 - Delete (D)
 - Attributes (A)
 - Execute (X)
 - Read (R)
 - Write (W)
 - Create (C)
 - Permissions (P)

Figure 4-13. Access Control Profile (ws971426)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Access Permissions Applicable to Resource Types

Access permission	Files	Printers	Serial Devices	Named Pipes
None (N)	X	X	X	X
Execute (X)	X			
Read (R)	X		X	X
Write (W)	X		X	X
Create (C)	X	X	X	X
Delete (D)	X			
Attributes (A)	X			
Permissions (P)	X	X	X	X

Refer to - Chapter 7 of the *Network Administrator's Guide*

Figure 4-14. Access Permissions Applicable to Resource Types (ws971428)

Notes:

Note: When defining access control profiles for removable media devices (CD-ROM, ZIP, so forth), verify that the profile applies against the drive, not the "root directory" of the drive.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

4.7 Sharing Network Resources

Instructor Topic Introduction

What students will do —Review the concepts of defining network resources.

How students will do it —Lecture and instructor-led discussion followed by lab.

What students will learn —What kinds of network resources can be defined and how to define these resources.

- Create an access control profile and designate access permissions for each device to be shared.
- Share resources using aliases.
- Share resources using netnames.
- Access resources on other domains.
- Manage peer workstations resources.
- Limit directory space available to users (386 HPFS).

How this will help students in their job —Defining and managing network resources are an essential part of an administrator's tasks.

Types of Resources

- **Directory Resources**
 - Directory or subdirectory on a server containing programs or data files that can be made available to users.
- **Spooler Queues (Printers)**
 - An ordered list of print jobs waiting to access a printer. A printer pool is a group of printers servicing a single spooler queue.
- **Serial Device Queues**
 - Serial devices, such as plotters, com ports, modems
- **Drives**
 - Logical drive that contains a root directory and subdirectories
 - Sharing a drive resource allows LAN users to connect to all data and applications on that drive.
- **Resources Other Domains**
 - Any of the above. Previously called External Resources

Figure 4-15. Types of Resources (ws971420)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Sharing Network Resources

- Sharing using netnames
 - Unique name per server (UNC)
 - \\server1\netname\path
 - Not portable
- Sharing using aliases
 - Unique per domain
 - Portable
 - Required for
 - Public applications
 - Logon assignments

Figure 4-16. Sharing Network Resources (ws971422)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Directory Limits (386 HPFS)

- Terms
 - Available space
 - Drive/Volume
 - Limit
 - Threshold alert
 - Threshold delay
 - Usage count
- Hierarchical
 - Directories only
 - Affects subdirectories
 - Users only

Refer to Chapter 6 of the *Network Administrator's Guide*

Figure 4-17. Directory Limits (386 HPFS) (ws971424)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

4.8 Managing Network Printing

Instructor Topic Introduction

What students will do —Review defining network printers and how users can be defined with a privilege that allows them to manage printers.

How students will do it —Lecture and instructor-led discussion.

What students will learn —How to define network printer resources and how to specify particular users to manage these printers.

- Install a network printer at a server
- Grant print operator privileges to a user
- Print using OS/2 and NET commands
- Print from a Presentation Manager® application
- Install and configure network printers for DOS LAN Services Windows
- Update OS/2 printer object settings

How this will help students in their job —Printer resources require special considerations for the network administrator. Defining, updating, and changing printer settings and controlling a particular printer's service is often a task that can be better managed by a user with operator privileges.

Network Printing

- Printer objects are printer queues
- Network folder to manage network printers
- Print Operator Privilege
- Client and servers must have same level of drivers
- Printer settings
 - Network job view
 - Refresh interval
 - Separator file
 - Start time
 - Stop time

Refer to Chapter 11 of the *Network Administrator's Guide*

Figure 4-18. Network Printing (ws971434)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

4.9 Managing Volumes and Partitions

Instructor Topic Introduction

What students will do — Review the management of server volumes, file systems of volumes, adding additional volumes, and managing drive letters of these volumes.

How students will do it — Lecture and instructor-led discussion followed by lab.

What students will learn — How to add additional volumes, add partitions to a volume, what file systems can be extended, and how to manage and set drive letters that will be used by volumes.

- Create a partition
- Delete a partition
- Bootable volumes
- Non-bootable volumes
- Changing a drive letter assigned to a volume
- Expanding a volume
- Set or change a volume name
- Delete a volume
- Hide a volume from OS/2
- Unhide a volume from OS/2

How this will help students in their job — Adding or changing drive allocations on a server is a required part of server management. The LVM capabilities included in OS/2 Warp Server for e-business make this task much easier than previous versions. The network administrator should be familiar with the capabilities of LVM and general volume management to be effective at performing this task.

Logical Volume Management Tool - Logical View

Logical Volume	Type	Status	File System	Size (MB)
Win95/NT/Warp 5	Compatibility		HPFS-H	1004
Warp 5	C: Compatibility	Bootable	HPFS	502
Warp 4	D: Compatibility	Bootable	HPFS	502
E drive	E: Compatibility		HPFS	2458
MiniBoot	F: Compatibility	Bootable	FAT16	302
Data	G: Compatibility		HPFS	8002
VCDROM	H: Compatibility		FAT16	701
Data 3	I: Compatibility		HPFS	4902
LVM	J: LVM		JFS	2005
[CBSIFS 1]	*->P: Compatibility		CBSIFS	0

Disk Partition	Size (MB)	Disk Name
[P 0]	1002	Disk 2 - 8 GB
[P 1]	1003	Disk 2 - 8 GB

Figure 4-19. Logical Volume Management Tool - Logical View (ws971438)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Physical Disk View

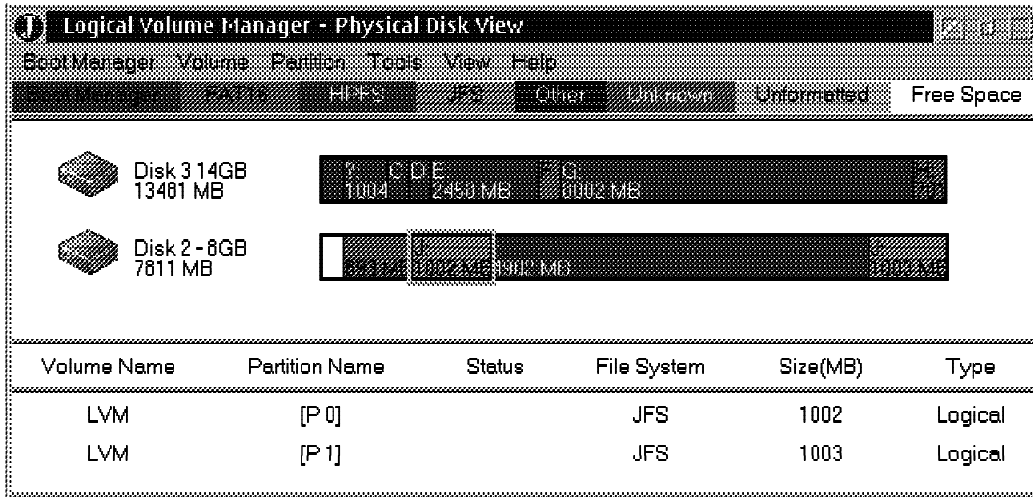


Figure 4-20. Physical Disk View (ws971440)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Install Boot Manager

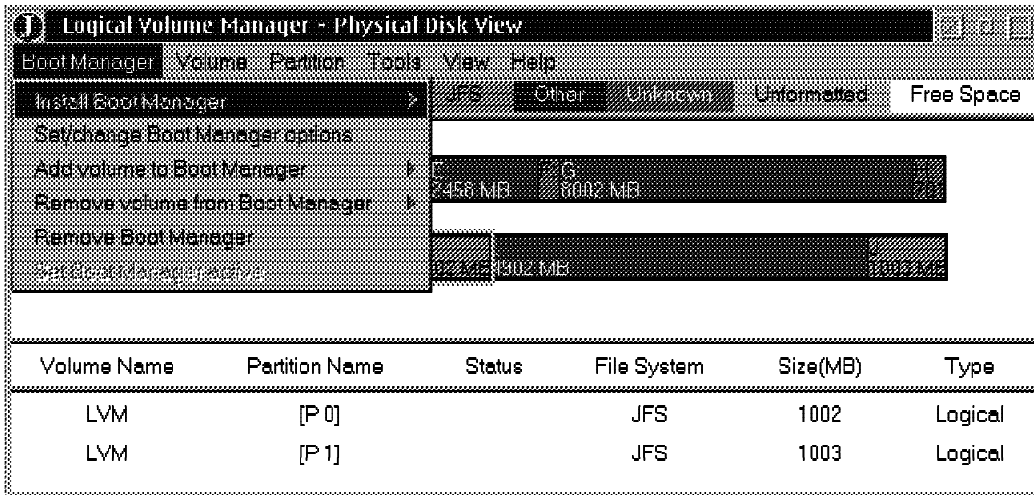


Figure 4-21. Install Boot Manager (ws971442)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Create Volume

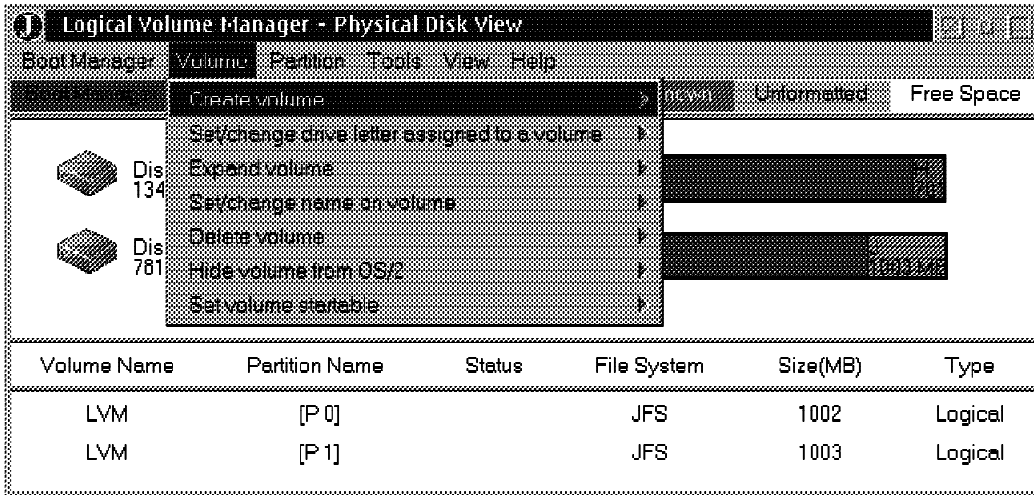


Figure 4-22. Create Volume (ws971444)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Create Partition

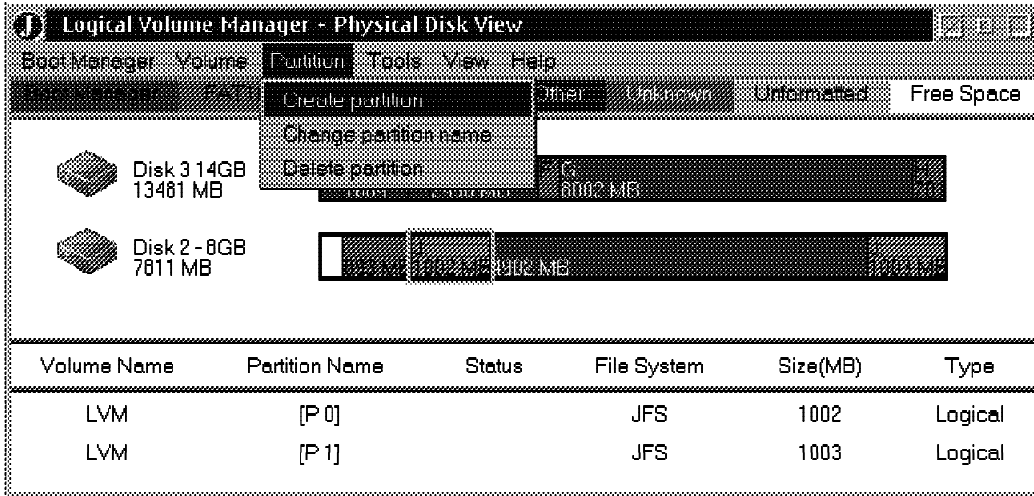


Figure 4-23. Create Partition (ws971446)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Commit Changes

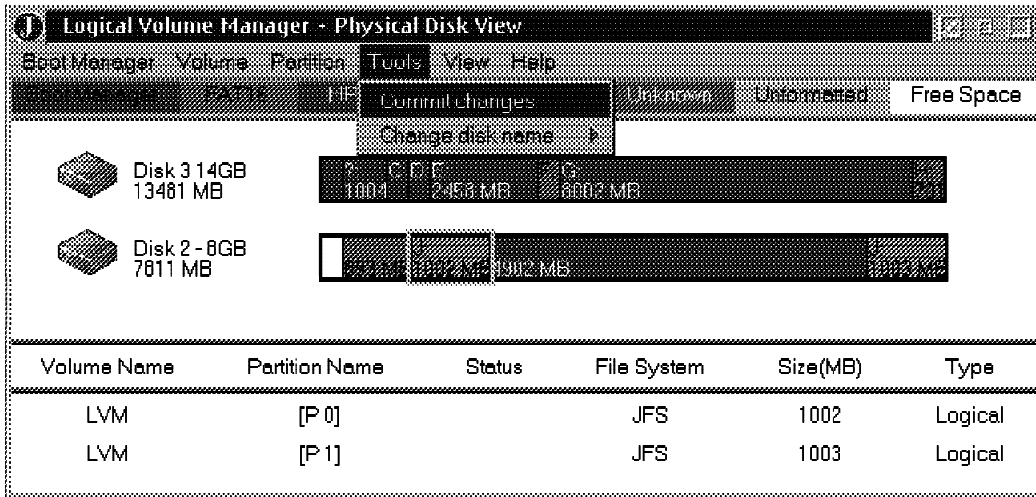


Figure 4-24. Commit Changes (ws971448)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

LVM Overview

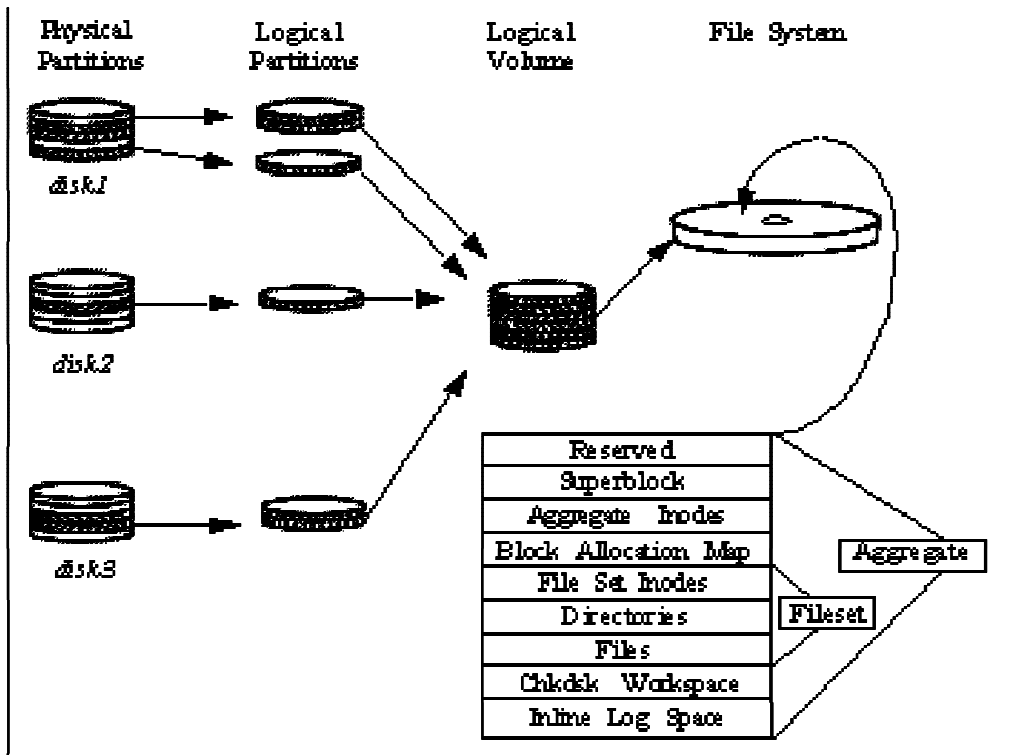


Figure 4-25. LVM Overview (ws971316)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

LVM Components

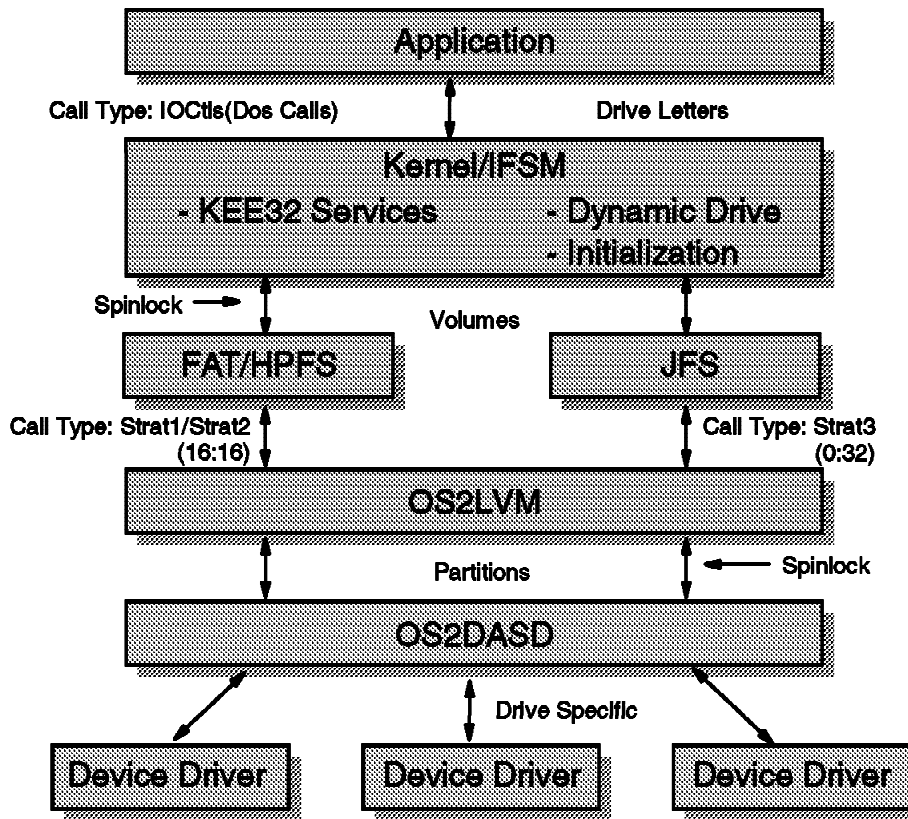


Figure 4-26. LVM Components (ws971318)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Physical View via LVM

The screenshot shows the 'Physical View' window of the Logical Volume Management (LVM) tool. It displays two tables: one for physical disks and one for disk partitions.

Physical Disk	Size (MB)	Free Space	Total	Largest
1 DISK1	4116	2676	4116	4116
2 DISK2	4285	4204	4285	4285

Disk Partition	Size (MB)	Type	Status	Logical Volume
[BOOT MANAGER]	7	Primary	In use	
Aurora boot	1927	Primary	In use	Aurora
[free space 1]	2855			
data	1927	Logical	In use	data

At the bottom of the window, navigation options are listed: F1-help, F3-exit, F5-Logical View, Enter-Options, Tab-Window.

Figure 4-27. Physical View via LVM (ws971320)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Physical View via LVMGUI

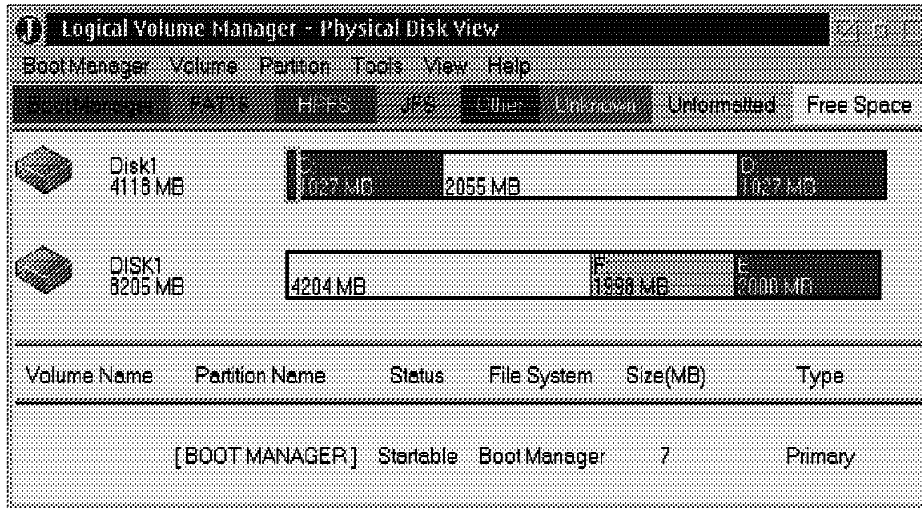


Figure 4-28. Physical View via LVMGUI (ws971322)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Logical View via LVM

Logical Volume	Type	Status	File System	Size (MB)
narora	C	Compatibility	Readble	1027
data	D	Compatibility	HPFS	1027
test99	E	Compatibility	HPFS	2000
test0	F	LVM	None	1999

Disk Partition	Size (MB)	Disk Name
narora boot	1027	Disk1

F1 help F3 exit F5 Physical View Enter Options Tab Window

Figure 4-29. Logical View via LVM (ws971324)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Logical View via LVMGUI

The screenshot shows a window titled "Logical Volume Manager - Logical Volume View" with a menu bar containing "Boot Manager", "Volume", "Partition", "Tools", "View", and "Help". The main content is a table with the following data:

Volume	Name	Status	File System	Size(MB)	% Used	Unused(MB)	Linked
C:	Aurora	Bootable	HPFS	1027	19%	827	NO
D:	data		HPFS	1027	15%	867	NO
E:	test89		HPFS	2000	0%	1999	NO
F:	testB		Unformatted	1998	0%	1998	NO

Figure 4-30. Logical View via LVMGUI (ws971326)

Notes:

Instructor Notes:

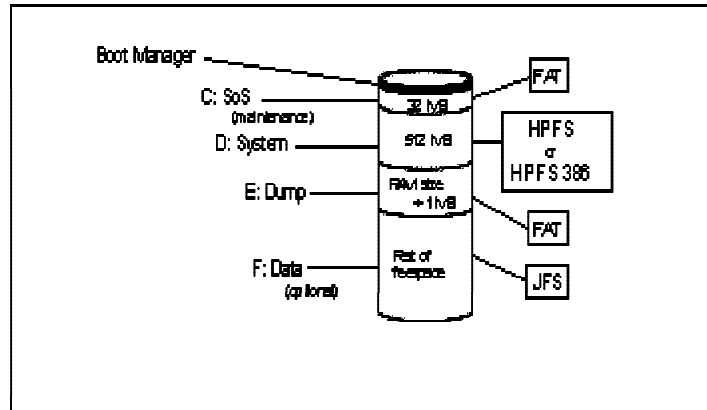
Purpose —

Details —

Additional Information —

Transition Statement —

Notes



```

lvm /delete:all,volumes
lvm /delete:all,unused
lvm /delete:all,primary
lvm /delete:all,lvm
lvm /delete:all,logical
lvm /delete:all,compatibility
lvm /bootmgr:1
lvm /create:partition,SoS,1,32,primary,bootable
lvm /create:volume,compatibility,bootos2.c::SoS,1,So
lvm /create:partition,system,1,512,logical,bootable
lvm /create:volume,compatibility,bootos2.d::system,1
lvm /create:partition,dump,1,129,logical,nonbootable,[FSL],fromstart
lvm /create:volume,compatibility,noboot,e::dump,1,du
lvm /create:partition,data,1,,logical,nonbootable,[FSL],fromstart
lvm /create:volume,lvm,f::data,1,data

```

Figure 4-31. Notes (ws971328)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

JFS System Structure

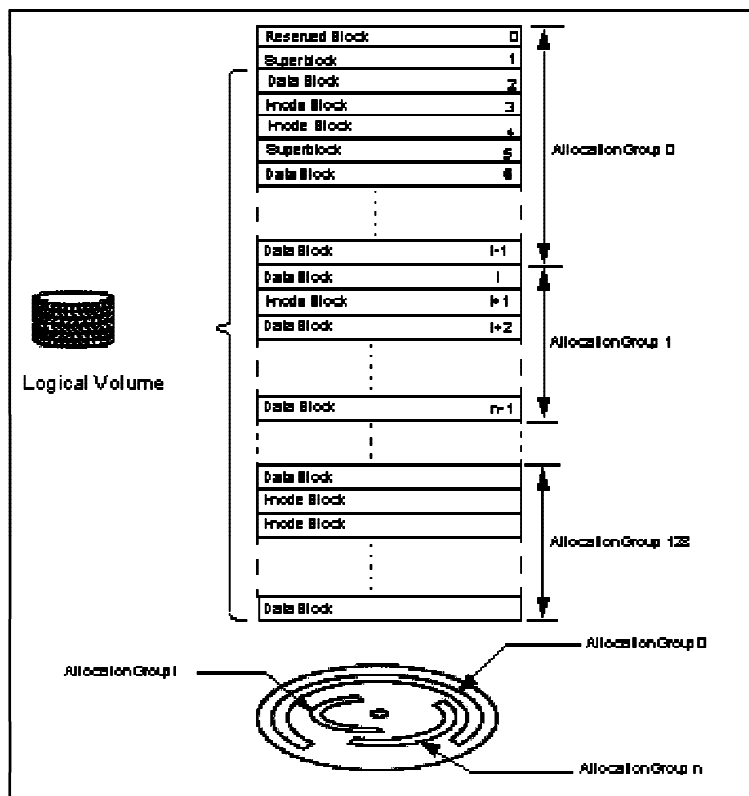


Figure 4-32. JFS System Structure (ws971330)

Notes:

JFS divides the Logical Volume into a number of fixed size units or logical blocks. Each logical block comprises a fix number of aggregate blocks, which can be 512, 1024, 2048, or 4096 bytes. The aggregate block size is defined at creation time, via extra parameters to the format command, which defines the smallest unit of space allocation supported on the aggregate.

JFS Physical Organization in a Logical Volume.

Reserved Block 0

This logical block is reserved and largely unused. Its origins is from the AIX® implementation of JFS, if it is at the start of the disk then one thousand is used for the bootstrap program. LVM data is also stored, in this block. The LVM data resides just before the bootstrap area.

Superblock

The first and fifth logical blocks are reserved for the superblock, with the fifth block being a backup copy of the first. The superblock contains information such as the aggregate size, the file system name, version number and file system state.

Allocation Groups

The rest of the logical blocks are divided into a number of allocation groups. Allocation groups are comprised of data blocks and i-nodes, which reference these data blocks. Allocation groups allow resource policies to be applied which result in good I/O performance. The purpose of these allocation policies is as follows:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

I-Node

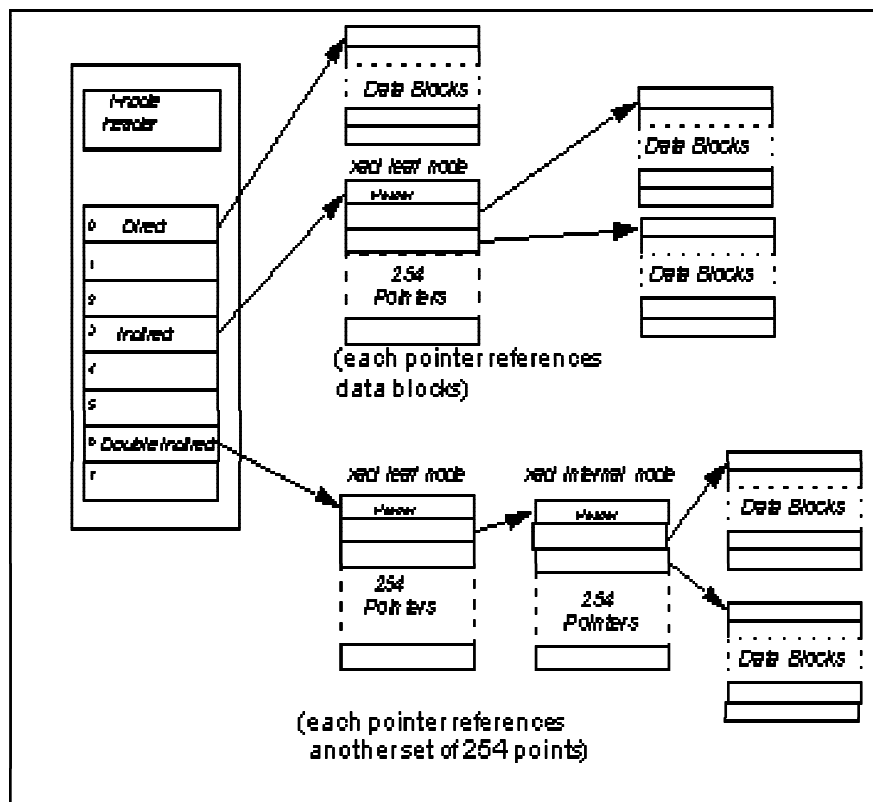


Figure 4-33. I-Node (ws971332)

Notes:

Files created within a directory will be maintained in an allocation group with that directory. The policy tries to allocate contiguous logical blocks, clustering together disk blocks and disk i-nodes of related data to achieve good locality for the disk. This results in less disk-head movement thus quick access to the data.

Ease file system extension

Extending the file system is easier as a new allocation group of i-nodes and data blocks can be added, maintaining the relationship between i-nodes and file system size simply. Without allocation groups, the file system would either have to be reorganized to increase the number of i-nodes, or the extension could only increase the number of data blocks available, thereby conceivably limiting the number of files and directories in the file system.

In order to minimize the number of updates required when an aggregate is expanded (or shrunk), the allocation groups have been limited to a maximum number of groups, 128. Additionally a minimum of 8192 aggregate blocks has been imposed in the size of the allocation group.

I-nodes

Basically an i-node is a pointer to a file. An i-node contains information on the file such as the type of file, the size in bytes, permissions, owner, access permissions for the file, the number of blocks allocated to the file, creation date, last modification date, last accessed date, and pointers to the blocks that actually contain the file.

I-nodes are allocated dynamically by allocating i-node extents that are simply a contiguous chunk of i-nodes on the disk. By definition, a JFS i-node extent contains 32 i-nodes. With a 512 byte i-node size, an i-node extent is therefore 16 KB in size on the disk.

Information within an i-node is divided into two parts. The first part contains information such as permissions and owner for the directories or file. The second part contains an array of pointers to the actual disk addresses of the logical blocks that makeup the file or directory.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Aggregate Structure

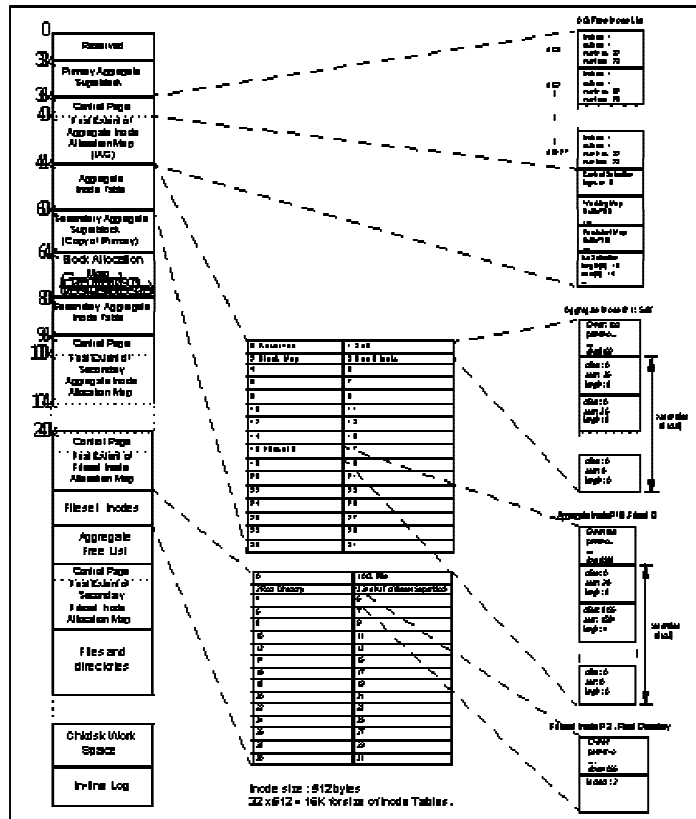


Figure 4-34. Aggregate Structure (ws971334)

Notes:

An aggregate has :

- **A 32 KB of reserved data** are at the front of it.
- **Primary and Secondary Aggregate Superblocks.** These superblocks contain aggregate-wide information such as the size of the aggregate, size of the allocation groups, aggregate block size, so forth. The secondary aggregate superblock is a direct copy of the primary aggregate superblock, used if the primary becomes corrupted. These superblocks are at fixed locations on the disk.
- **An Aggregate I-node Table.** This table contains an array of i-nodes describing the aggregate-wide control structures. This table is critical for finding any file system information.
- **A Secondary I-node Table.** This is a replica of the Aggregate I-node Table. The actual data for the i-nodes is not repeated, just the addressing structures used to find the i-nodes themselves.
- **Aggregate I-node Allocation Map.** This map describes the Aggregate I-node Table and contains allocation state information on the aggregate i-nodes as well as their on-disk location. Since the i-node allocation is dynamic there isn't any relationship between an i-node number and the disk address of the i-node hence the map is required.

- **Secondary Aggregate I-node Allocation Map.** This map is a duplication of the Aggregate I-node Allocation Map.
- **Block Allocation Map.** This map describes the control structures for the allocation and deallocation of aggregate disk blocks within an aggregate. It tracks the allocated and freed disk blocks for the entire aggregate.
- **A Fileset I-node Table.** This table contains an array of i-nodes which describe the fileset-wide control structures.
- **A Fileset I-node Allocation Map.** This map describes the fileset I-node table. It contains allocation state information on the fileset i-nodes as well as their on-disk location. There is also a secondary version of this map which points to the same data. When the fileset is initially created, the first i-node extent is allocated, additional i-node extents are allocated and deallocated dynamically as required.
- **File and Directory logical blocks.**
- **fsck (chkdsk) Working Area.** This area provides space for check disk to be able to track aggregate block allocations. This space is used when dealing with very large aggregate block allocations, as there may not be sufficient memory to do the tracking. There is a one-to-one relationship of bit to aggregate block. The space is described by the superblock and always found near the end of the aggregate, just before the Inline log.
- **Inline Log.** This space is used for logging the changes to the metadata of the aggregate. This space is described by the superblock and is bound at the end of the aggregate.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Logical Volume View

The screenshot shows a window titled "Logical Volume Manager - Logical Volume View" with a menu bar containing "Boot Manager", "Volume", "Partition", "Tools", "View", and "Help". The main area displays a table with the following columns: Volume, Name, Status, File System, Size(MB), % Used, Unused(MB), and Type.

Volume	Name	Status	File System	Size(MB)	% Used	Unused(MB)	Type
?:	Win95/NT/Warp 5		HPFS-H	1004	100 %	0	Competibility
C:	Warp 5	Bootable	HPFS	502	81 %	93	Competibility
D:	Warp 4	Bootable	HPFS	502	58 %	209	Competibility
E:	E drive		HPFS	2458	5 %	2333	Competibility
F:	MiniBoot	Bootable	FAT16	302	73 %	80	Competibility
G:	Data		HPFS	8002	87 %	981	Competibility
H:	VCDROM		FAT16	701	95 %	33	Competibility
I:	Data 3		HPFS	4902	84 %	754	Competibility
J:	LVM		JFS	2005	10 %	1789	LVM-linked
*->P:	[CBSIFS 1]		CBSIFS	0	0 %	981	Competibility
*->R:	[FAT 2]		FAT	0	0 %	1	Competibility

Figure 4-35. Logical Volume View (ws971452)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

4.10 Managing Backup and Recovery

Instructor Topic Introduction

What students will do —Review backup and recovery strategies.

How students will do it —Lecture and instructor-led discussion, followed by lab.

What students will learn —How to develop an appropriate backup strategy based on system and network requirements. Students will learn what features of the OS/2 Warp Server for e-business backup component (PSNS) support these strategies. Students will learn the importance of testing that backups can be easily recovered.

- Develop backup strategy
- Implement backup strategy
- Backup the system and user files according to backup plan
- Evaluate and revise (if necessary) backup strategy

How this will help students in their job —Planning, implementing, and testing an appropriate backup and recovery strategy is part of an administrator's responsibility.

Personally Safe and Sound (PSnS)

- **Backup set**
 - Logical collection of backed up files
 - Backup media defined
 - Separate for each project/data group
 - Dual device-capable
 - File filters
 - Rule books

- **Strategy**
 - What data should I backup?
 - When and how often does backup occur?
 - Where should the backup be stored?
 - Fast access Hard disk or LAN alias
 - Large capacity Tape or Read/Write optical
 - Cheap storage Diskette or Removable Drive
 - Centrally managed ADSTAR

Figure 4-36. Personally Safe and Sound (PSnS) (ws971453)

Notes:

Instructor Notes:

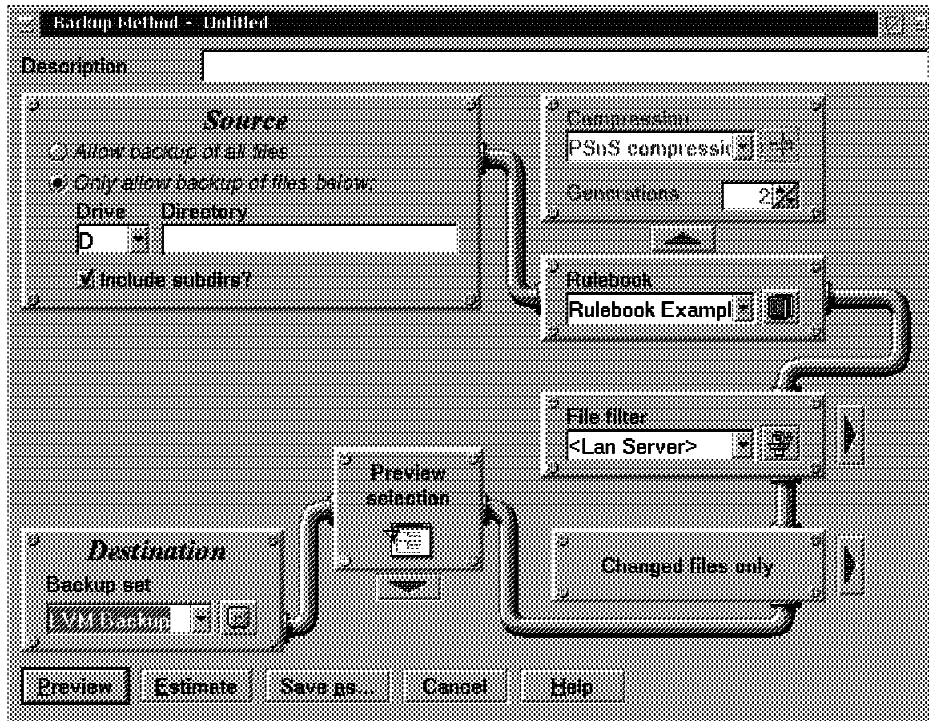
Purpose —

Details —

Additional Information —

Transition Statement —

Backup Method



Refer to the online *PSnS Manual* for guidance and details.

Figure 4-37. Backup Method (ws971454)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Source Drives

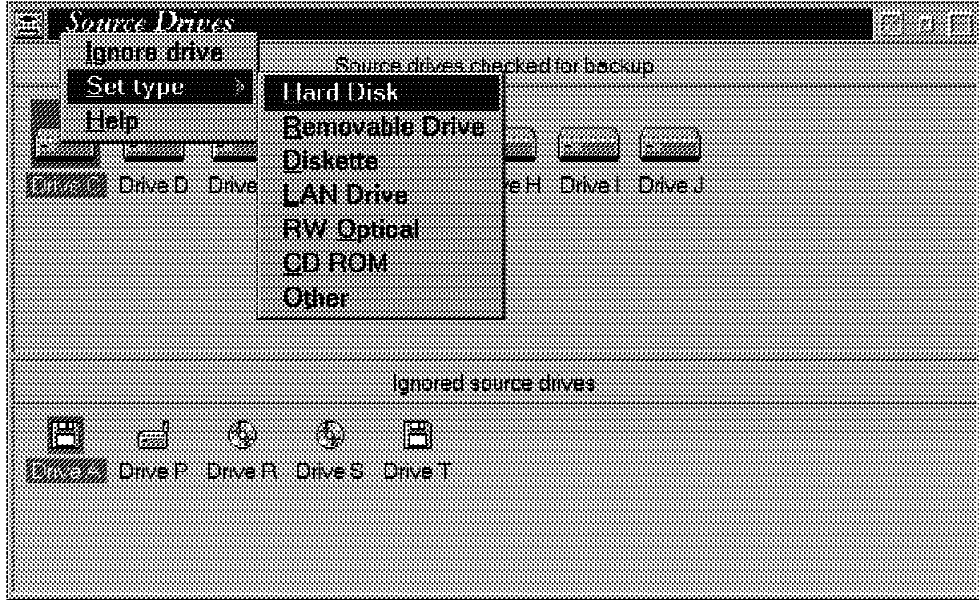


Figure 4-38. Source Drives (ws971455)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Storage Devices

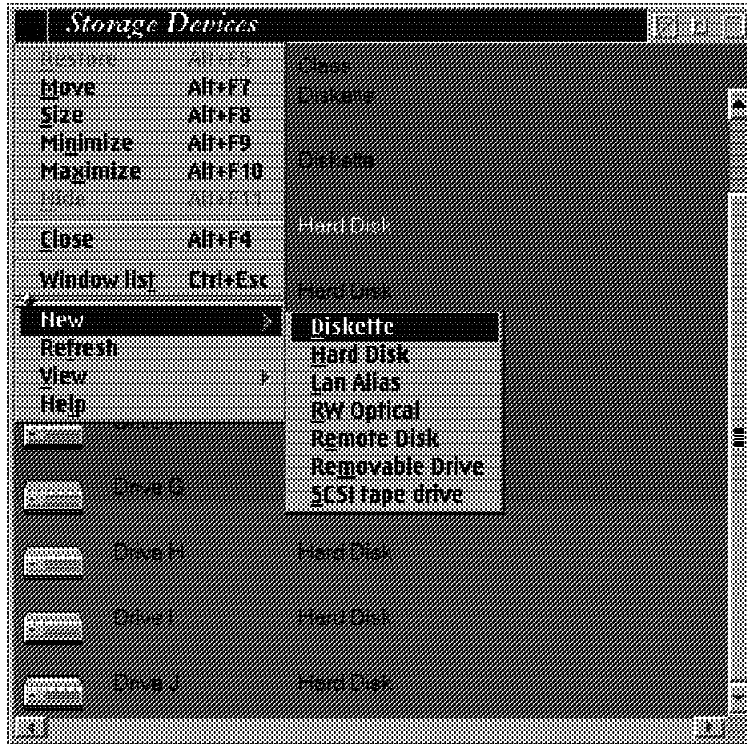


Figure 4-39. Storage Devices (ws971456)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Backup Sets

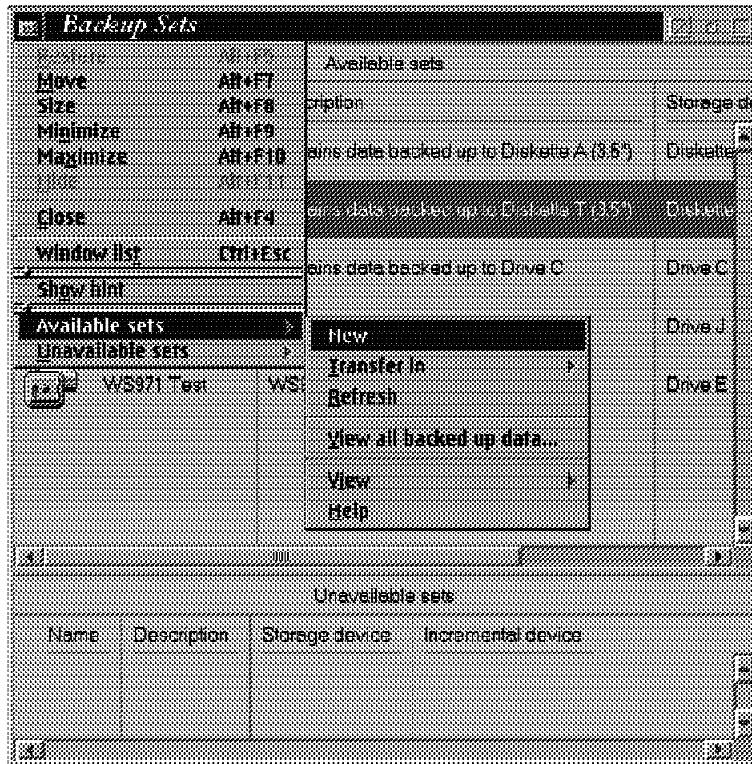


Figure 4-40. Backup Sets (ws971457)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

4.11 Managing Network Security

Instructor Topic Introduction

What students will do —Students will be given an overview of various levels of security requirements. They will discuss how to assess, install, and test the appropriate security required for any particular server.

How students will do it —Lecture and instructor-led discussion.

What students will learn —How to select the level of security needed for a particular installation (or server), review the implementation of this security, and how to install local security where appropriate, and how to manage a server with local security installed. Open discussion on the tradeoffs of security versus usability is expected and encouraged.

- Determine security guidelines
- Restrict access to the network
- Restrict access to data
- Restrict physical access to servers
- Implement local security
- Managing local security on 386 HPFS servers
- Start a server with local security
- Access a server with local security
- Run privileged programs
- Run privileged programs at startup
- Run privileged programs from the command line

How this will help students in their job —Determining the appropriate levels of security required for a particular installation and implementing this security is necessary for running a secure and usable network.

Determine Security Guidelines

- Restrict access to the network
- Restrict access to data
- Restrict physical access to servers
- Local security
 - 386 HPFS servers
 - Local security access
 - LOCAL Group
 - User logged on
- Privileged programs
 - Run at startup
 - RUNPRIV.EXE
 - PRIVINIT.CMD
 - Run from the command line
 - PRIV <command>
 - Start PRIV <command>
 - Detach PRIV <command>

Note: STARTUP.CMD does NOT have any special privileges at startup.

Figure 4-41. Determine Security Guidelines (ws971458)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

4.12 Managing Server Applications

Instructor Topic Introduction

What students will do — Students will receive an overview of how server applications are installed and configured.

How students will do it — Lecture and instructor-led discussion, followed by a short lab.

What students will learn — How to install a server application, how to make these applications available to users and groups at user logon, and what setup considerations they may need to validate on user workstations for proper operation of these applications.

- Install, and configure OS/2, DOS, WorkSpace On-Demand, or Windows network application
- Define public applications
- Add public applications to users' program starters
- Define private applications
- Update private application definitions
- Delete private application definitions
- Create a subdirectory for DLL files
- Specify the location of DLL files
- Update Libpath on servers and requesters (where required)
- Stopping applications at logoff
- Defining network messaging as a public application for DOS LAN Requester 3.0 users
- Setting up applications to be run remotely
- Set up DOS LAN Services Windows shared applications
- Configure application environment variables (if needed)

How this will help students in their job — Defining server applications offloads much of the task of setting up user workstations to the server. This allows users to move between workstations and still have access to the same applications based on a user profile rather than workstation setup.

Network Applications

- **Application as a Resource**
 - Server stored
 - Client executed
 - Network managed (alias)
- **Private applications**
 - Created by the user for personal use
- **Public applications**
 - Created by administrator for general use
 - Install the application.
 - Create a directory alias for the application.
 - Create additional aliases other network resources
 - Assign access permissions for the aliases.
 - Define the application.
 - Customize application
 - Add the application to users or groups

Figure 4-42. Applications as a Resource (ws971460)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Considerations

- DLL locations
 - LIBPATH, BEGINLIBPATH, ENDLIBPATH
- User unique data
 - alias, home directory
- Environment variables

Figure 4-43. Considerations (ws971462)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Remote Execution

- Detachable programs
- runpath=
- NetRun service
- NET RUN <command.EXE>

Refer to Chapter 9 and Chapter 10 of the *Network Administrator's Guide*

Figure 4-44. Remote Execution (ws971464)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

4.13 TCP/IP Network Services

Instructor Topic Introduction

What students will do —

How students will do it —

What students will learn —

How this will help students in their job —

IP Address Assignment

- BOOTP
- BOOTPD
 - \\ETC\\SERVICE
 - \\ETC\\BOOTPTAB
- DHCPSTRT
- DHCPD
 - DHCPD.CFG
 - DHCPD.CFG
 - DHCPMON.EXE
 - DHCPD.EXE
 - DHCPD.CFG
 - DADMGUI
- NAMED
 - DDNSAPC
 - DDNSCFG
 - DHCPD.CFG
 - NSUPDATE

Figure 4-45. IP Address Assignment (ws971466)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

File Transfer

- FTP
- FTPD
- TFTP
 - NetRC.DAT
 - TCPCFG2
 - TRUSERS
 - TFTPAUTH
- NFS
- NFSD
 - TCPCFG2
 - "exports" file
 - TCPNBK.LST
 - MOUNT / UNMOUNT
 - SHOWEXP
 - SHOWMOUN

Figure 4-46. File Transfer (ws971468)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

TCP/IP Printing

- LPD
- LPQ
- LPR
- LPRM
- LPRMON
- LPRPORTD

Figure 4-47. TCP/IP Printing (ws971470)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Remote Access

- TELNET
- TELNETD
 - NETSP
 - "SHELL"
- REXEC
- REXECD
- RSH
 - RHOSTS
 - TCPCFG2

Figure 4-48. Remote Access (ws971472)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Unit Summary

You should now be able to:

- Perform initial network administration tasks checklist
- Start, stop, and pause server services
- Access the network from various systems
- Manage domains
- Define and share network resources
- Create and apply access control profiles
- Manage network printing
- Define and manage users and groups
- Manage and add volumes and partitions
- Implement backup and recovery
- Manage network security
- Create and manage server applications

Figure 4-49. Unit Summary (ws9714zz)

Notes:

Instructor Notes:

Purpose —

Details —

Transition Statement —

Unit 5. Administering Installation Specific Tasks in OS/2 Warp Server for e-business

What This Unit Is About

This unit covers administration tasks that are installation specific and may not be required at all installations.

What You Should Be Able to Do

After completing this unit, you should be able to:

- Manage file and DCDB replication
- Tune a OS/2 Warp Server for e-business network
- Perform additional network task
- Perform multiple Client/Server integration
- Understand how to install, configure, and manage remote IPL

How You Will Check Your Progress

Accountability:

- A series of labs will validate that you know how to perform the tasks presented.

References

Network Administrators Guide
Performance Tuning Guide
Command Reference

Objectives

After completing this unit, you should be able to:

- Manage file and DCDB replication
- Tune a OS/2 Warp Server for e-business network
- Perform additional network task
- Perform multiple Client/Server integration
- Understand how to install, configure, and manage remote IPL services

Figure 5-1. Objectives (ws971500)

Notes:

Instructor Notes:

Purpose — This unit covers task that an administrator does not perform frequently, but they should be aware of how to accomplish them.

Details —

- Manage File and DCDB replication
- Tune a OS/2 Warp Server for e-business network
- Perform additional network Task
- Perform multiple Client/Server integration
- Understand how to install, configure, and manage remote IPL services

Additional Information — Emphasis should be placed on the concepts and where to locate the detailed information in the reference documentation. Students will not be performing these tasks frequently, so it is more important to know an overview of how to accomplish them and where to locate the needed information when they are asked to do these tasks.

Transition Statement — The following tasks are not performed as frequently by administrators. They do need to know how to generally go about them and where to locate the detailed information to accomplish them.

5.1 Managing File and DCDB Replication

Instructor Topic Introduction

What students will do — Review and discuss the reasons for file and DCDB replication.

How students will do it — Lecture and instructor-led discussion.

What students will learn — The concepts and reasons behind file replication and the procedures to define settings and start the replication services.

- Setting up the exporter
- Setting up the importer
- Starting Replication services
- Setting up DCDB exporter and importer
- Starting DCDB replication services

How this will help students in their job — Critical data may require frequent backup or be stored in multiple locations for performance reasons. OS/2 Warp Server for e-business includes facilities to automatically manage the replication of this data. The DCDB is one example of critical data, and replicating this data will speed any recovery or fallback procedures.

Setting Up the Exporter

REPL.INI - In first-level directory

extent = FILE/TREE <how far>
integrity = FILE/TREE <how stable>

User ID and password for Importer

IBMLAN.INI

replicate=export
exportpath=absolute path to the exporting trees
exportlist=Importer receiving updates
srvservices
guardtime=0-Interval/2
Interval=1-60
pulse=1-10
random=1-120
REPLICATOR to wrkservices section.

Access profile for export directory (tree)
Importer access to export directory

NET START REPLICATOR

Figure 5-2. Setting Up the Exporter (ws971502)

Notes:

Block replication with USERLOCK.??? file in directory.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Setting Up the Importer

First Level Import directory

Single Import path

IBMLAN.INI

replicate=import

importpath=absolute path to the Importing tree

importlist=exporter1;exporter2 sending updates

tryuser=yes

REPLICATOR to wrkservices section.

logon=Importer's logon ID

password=Importer's password

NET START REPLICATOR

Figure 5-3. Setting Up the Importer (ws971504)

Notes:

Prevent replication while a user is logged on, set try user to no

Signal files in directory

OK.RP\$ receiving updates

NO_MASTR.RP\$ not receiving updates

NO_SYNC.RP\$ receiving updates, not be current version

Refer to Chapter 15 of the *Network Administrator's Guide*

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

DCDB Replication

- Subset of Replication

Figure 5-4. DCDB Replication (ws971506)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

DCDB Exporter

REPL.INI in each subdirectory of IBMLAN\DCDB

extent = tree

integrity = file

Automatic management of USERLOCK.xxx

Don't create or remove

IBMLAN.INI (DCDBREPL section)

interval = 5

guardtime = 2

pulse = 3

random = 60

Add DCDBREPL to srvservices

Figure 5-5. DCDB Exporter (ws971508)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

DCDB Importer

IBMLAN.INI (DCDBREPL section)

tryuser = yes

logon = userid (administrator)

password = password

Add DCDBREPL to srvservices

Verify the following subdirectories exist:

C:\BMLANDCDB\USERS

C:\BMLANDCDB\DEVICES

C:\BMLANDCDB\PRINTERS

C:\BMLANDCDB\APPS

C:\BMLANDCDB\FILES

C:\BMLANDCDB\LISTS

C:\BMLANDCDB\DATA

NET STOP DCDBREPL

NET START DCDBREPL

Figure 5-6. DCDB Importer (ws971510)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

5.2 Tuning OS/2 Warp Server for e-business

Instructor Topic Introduction

What students will do —Receive an overview of the various tuning points available in OS/2 Warp Server for e-business and its clients.

How students will do it —Lecture and instructor-led discussion followed by lab.

What students will learn —An overview of the various places that tuning can be applied in a OS/2 Warp Server for e-business network. Frequent reference to the *Tuning Guide* will assist the instructor in giving an overview of these places. Emphasis will be placed on the tuning assistant as a tool to automate tuning for most network environments.

- Using the Tuning Assistant to perform common tuning tasks

How this will help students in their job —Tuning a network for best performance is an important part of an administrator's tasks. It is not done frequently, but students must be aware of the steps involved and the places to refer to for further information.

Tuning

- Capacity Tuning
- Performance Tuning
- Extensive Online reference
- *Performance Tuning Guide*
- "Still much of an art"
- IBM Tuning Assistant

Figure 5-7. Tuning (ws971512)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Tuning Assistant (1 of 11)

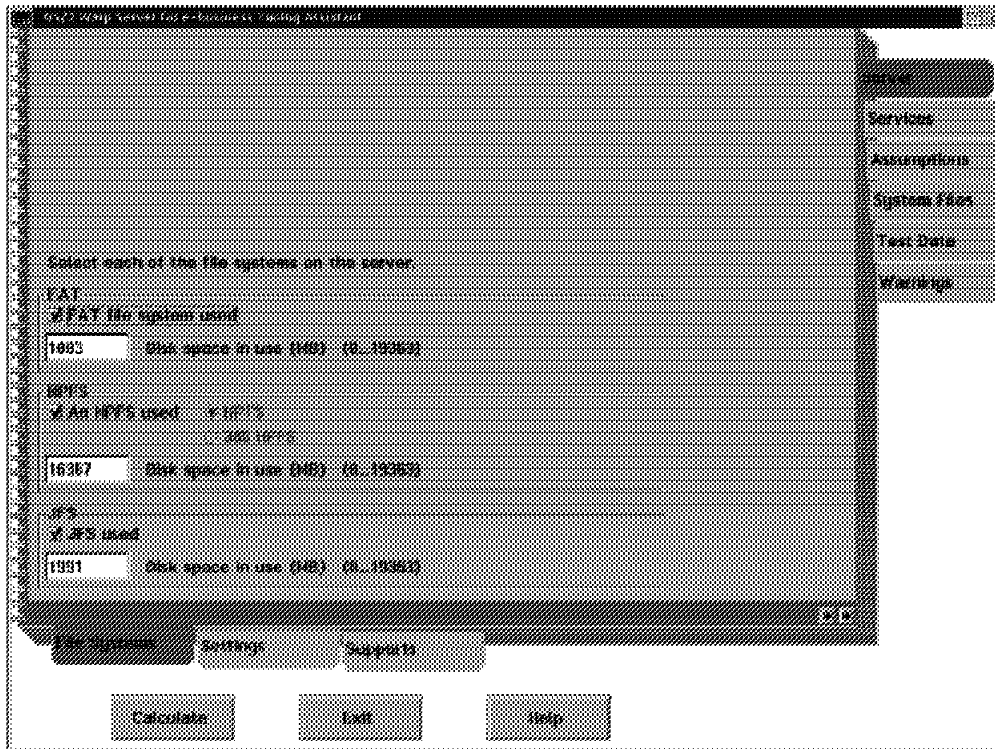


Figure 5-8. Tuning Assistant (1 of 11) (ws971514)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Tuning Assistant (2 of 11)

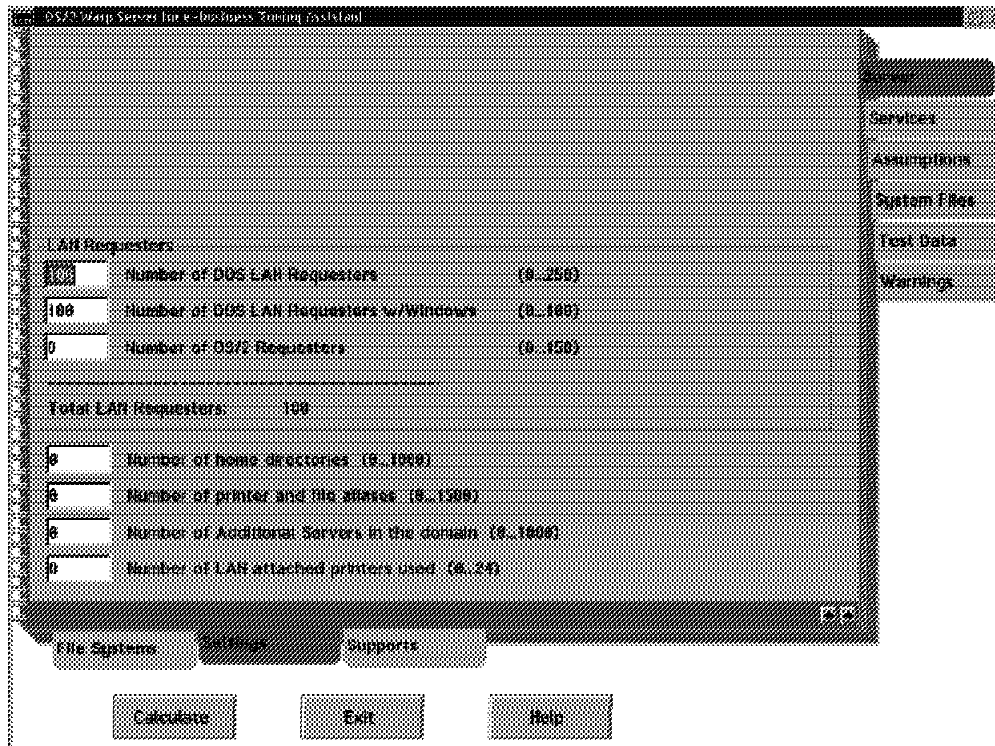


Figure 5-9. Tuning Assistant (2 of 11) (ws971516)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Tuning Assistant (3 of 11)

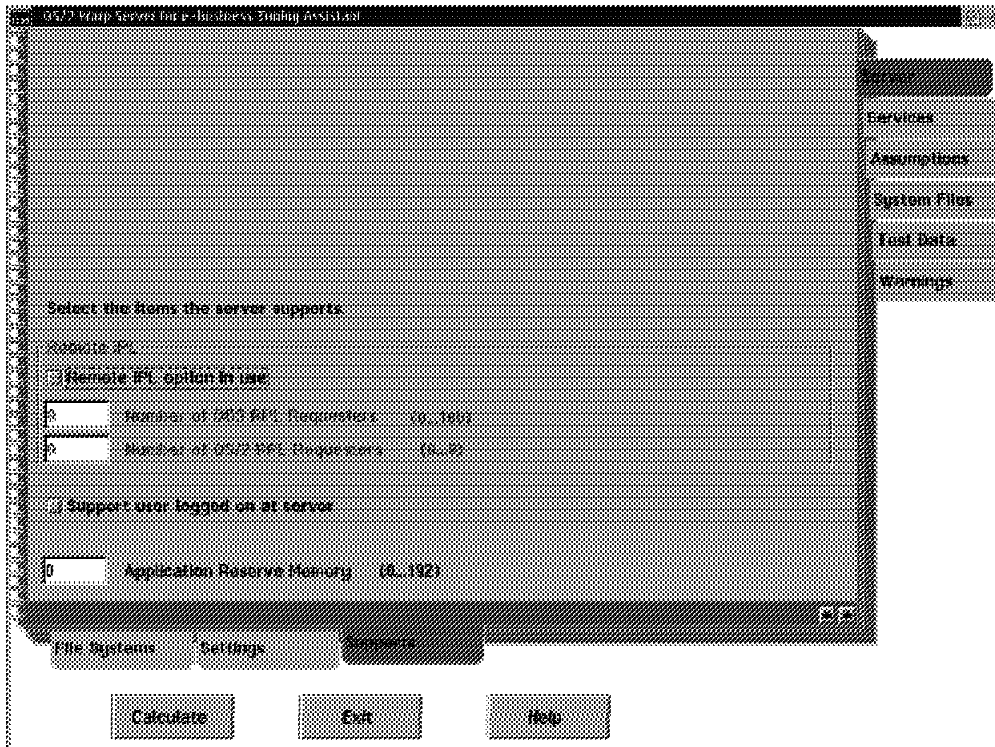


Figure 5-10. Tuning Assistant (3 of 11) (ws971518)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Tuning Assistant (4 of 11)

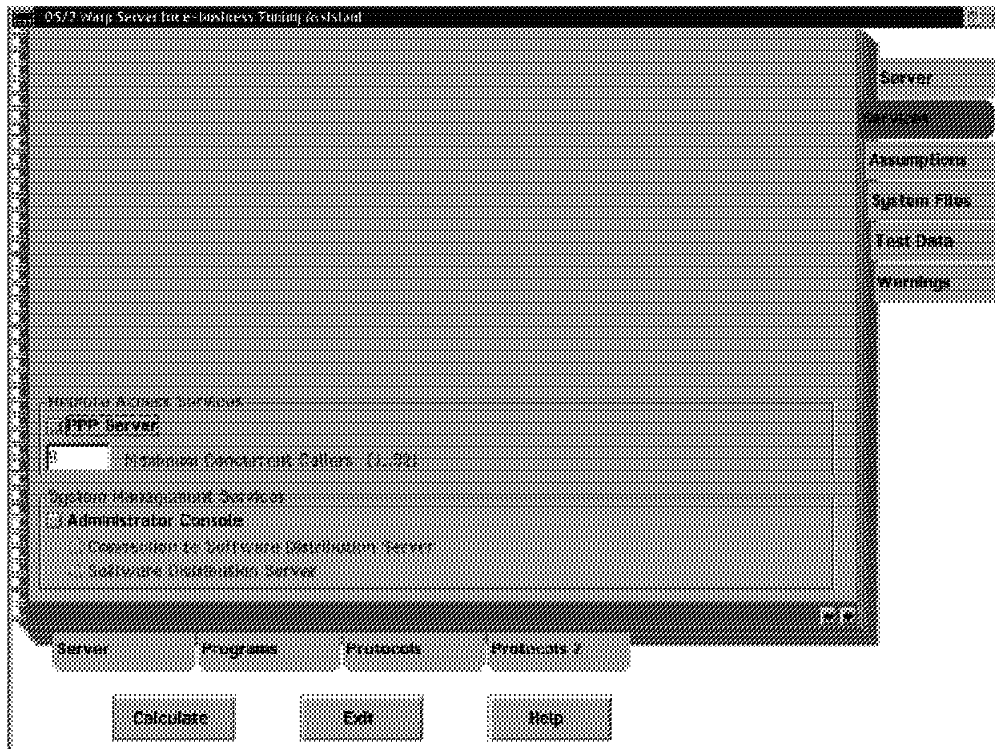


Figure 5-11. Tuning Assistant (4 of 11) (ws971520)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Tuning Assistant (5 of 11)

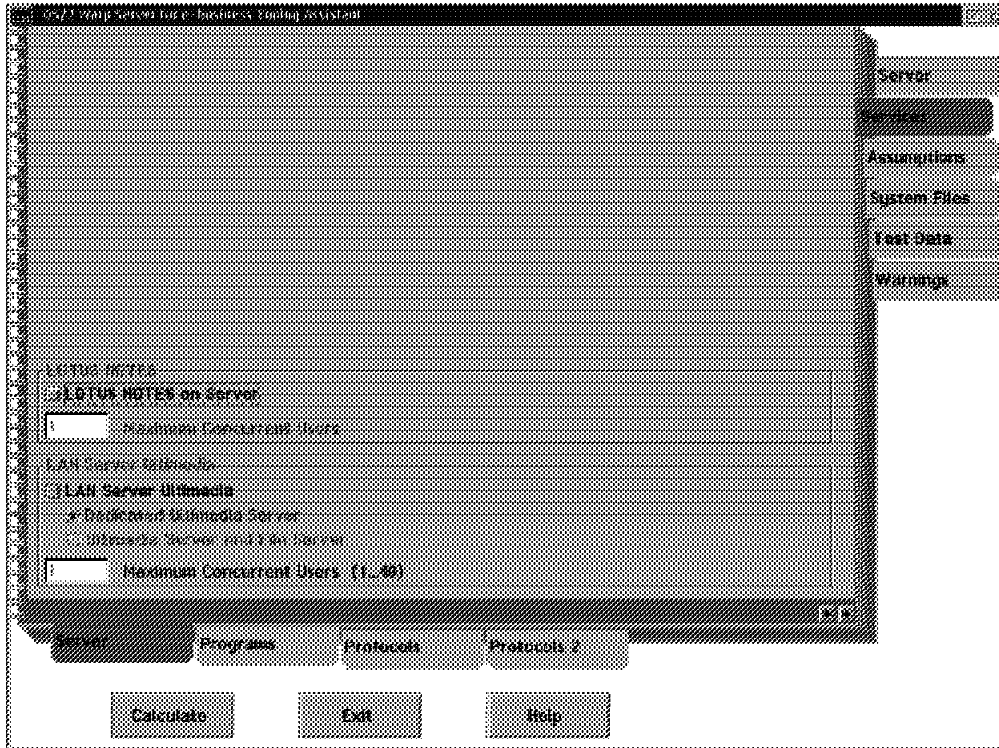


Figure 5-12. Tuning Assistant (5 of 11) (ws971522)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Tuning Assistant (6 of 11)

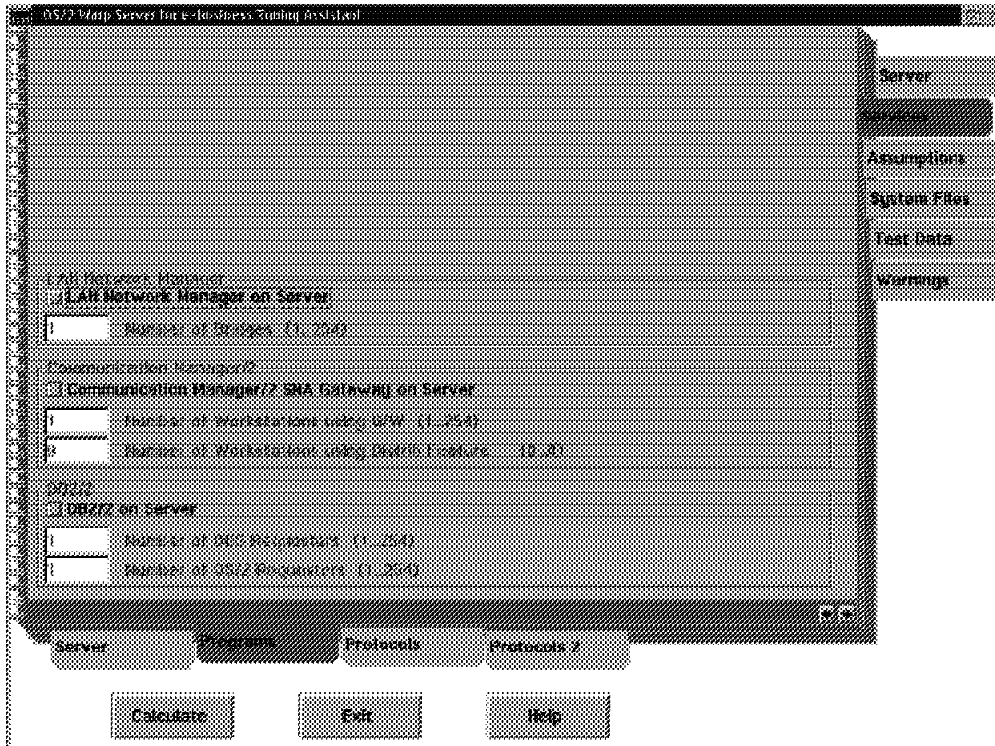


Figure 5-13. Tuning Assistant (6 of 11) (ws971524)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Tuning Assistant (7 of 11)

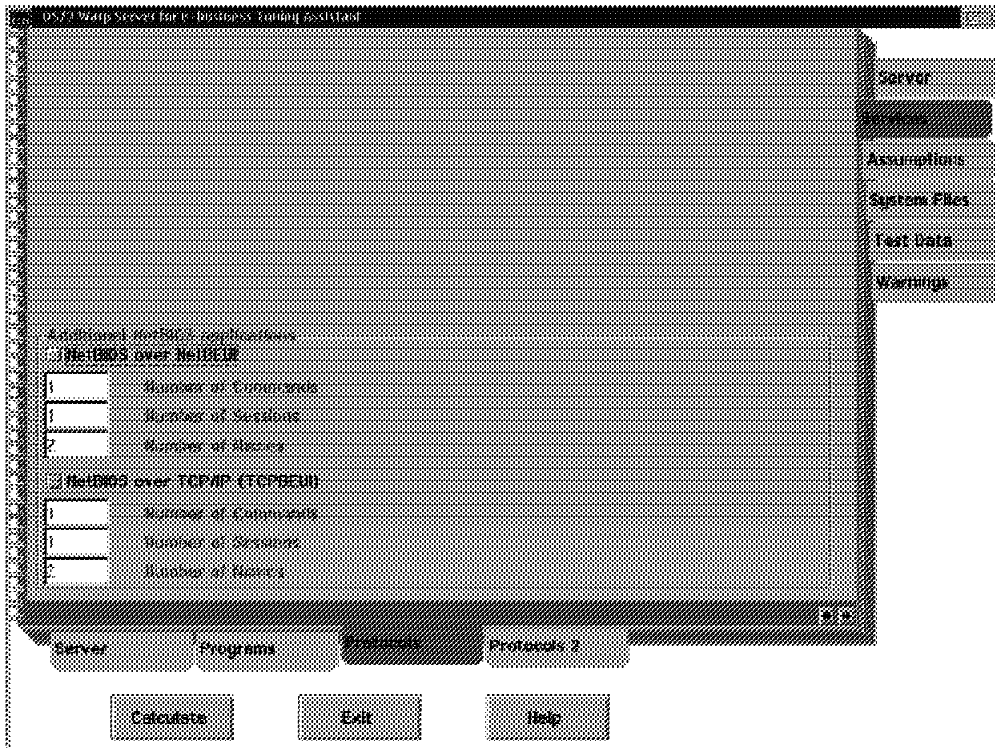


Figure 5-14. Tuning Assistant (7 of 11) (ws971526)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Tuning Assistant (8 of 11)

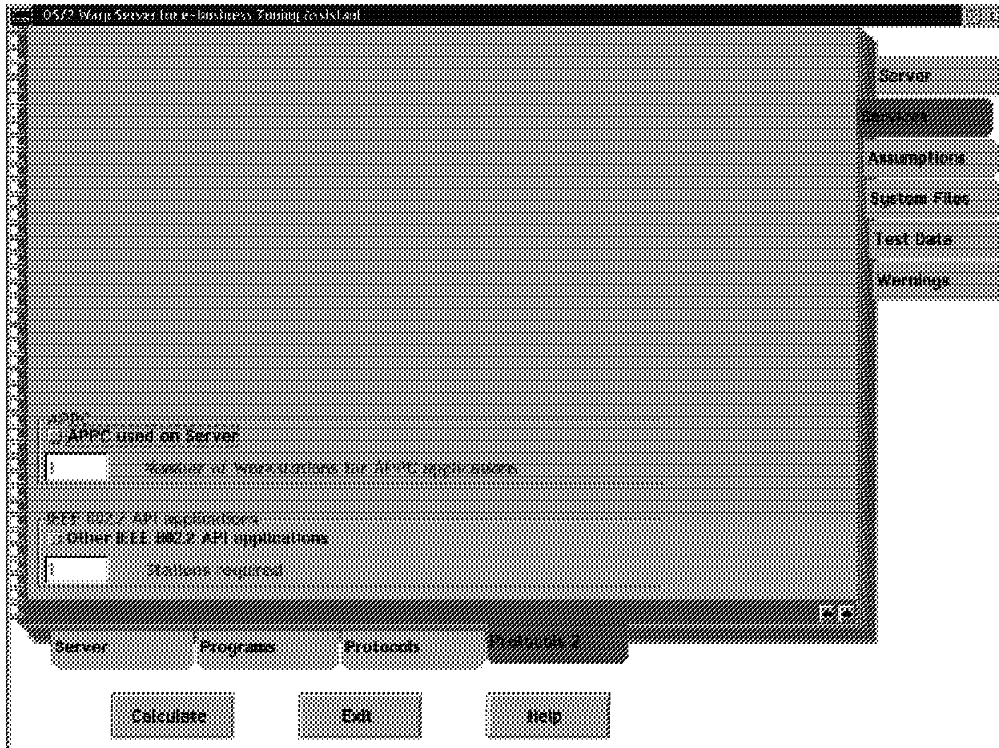


Figure 5-15. Tuning Assistant (8 of 11) (ws971528)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Tuning Assistant (9 of 11)

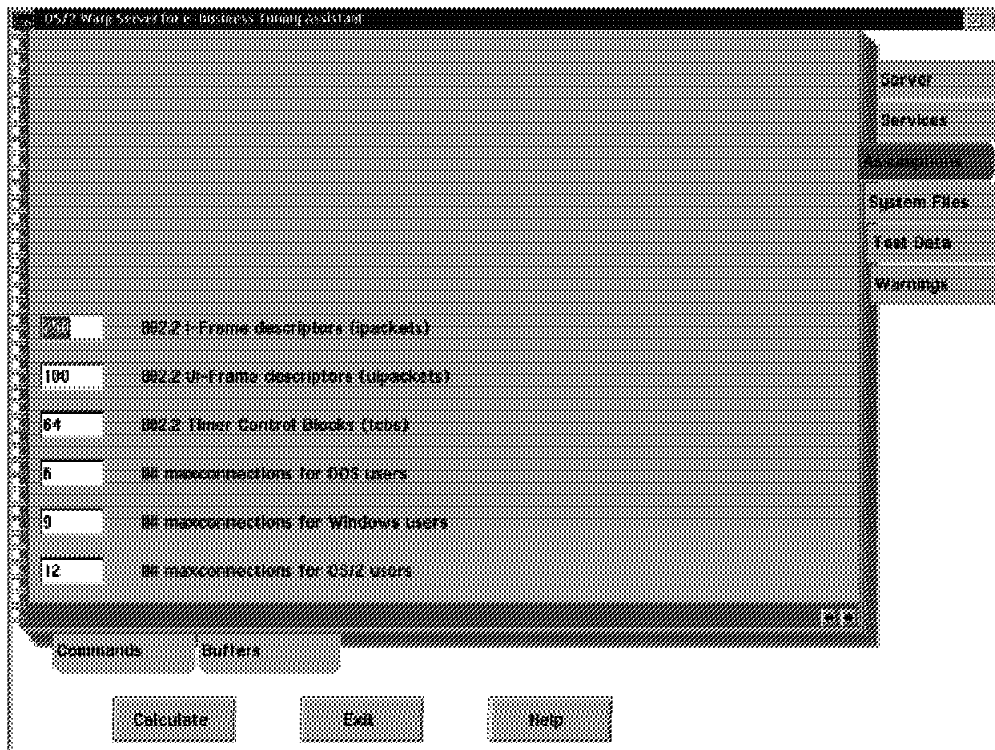


Figure 5-16. Tuning Assistant (9 of 11) (ws971530)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Tuning Assistant (10 of 11)

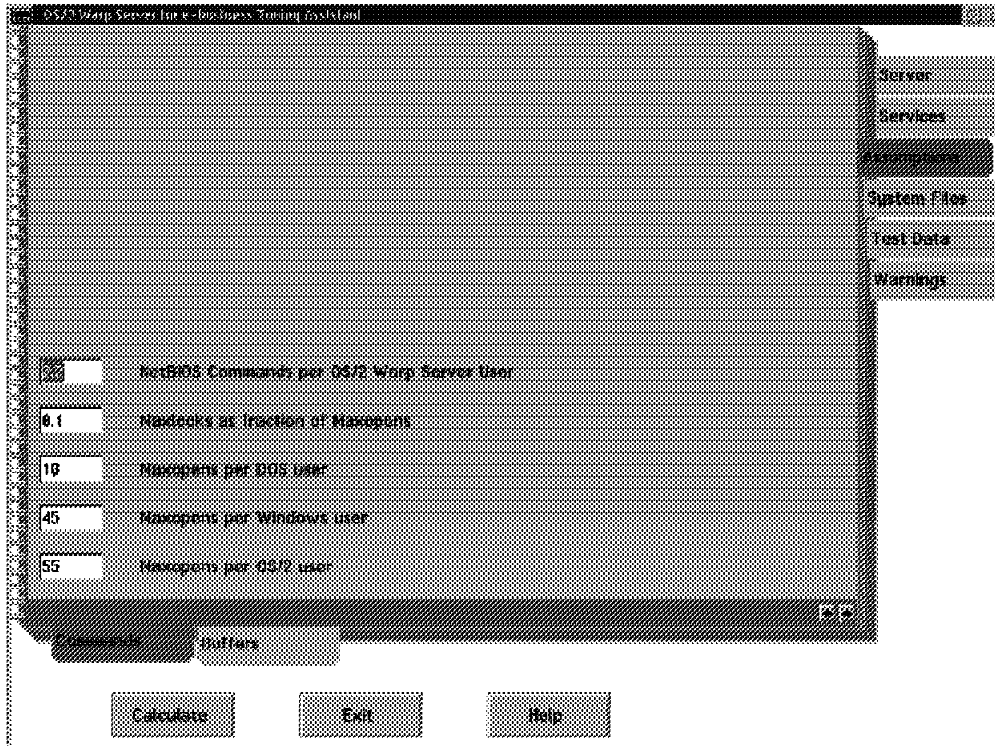


Figure 5-17. Tuning Assistant (10 of 11) (ws971532)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Tuning Assistant (11 of 11)

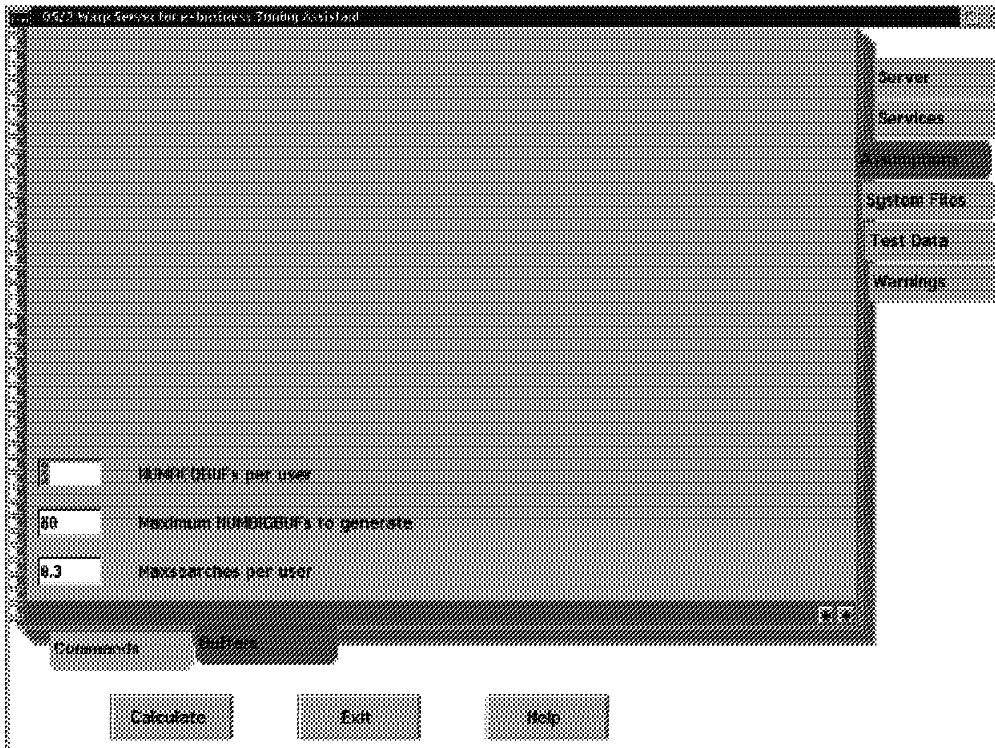


Figure 5-18. Tuning Assistant (11 of 11) (ws971534)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

5.3 Performing Other Network Tasks

Instructor Topic Introduction

What students will do — Review additional network tasks relating to monitoring network performance and usage.

How students will do it — Lecture and instructor-led discussion. Practical lab exercises are part of the problem determination unit.

What students will learn — Some additional administration activities they may need to perform.

- Update the definition parameters for servers and clients
- View and close open files
- View and delete active sessions
- View, print, and clear performance statistics
- Perform auditing tasks
- Manage error logs
- Schedule tasks to run at designated times on the server
- Configure and use an uninterruptible power supply service
- Selectively install, remove, or update support for a device (using selective install)

How this will help students in their job — These activities are not frequently required, but administrators should have knowledge of these tasks, and be able to perform them when required.

Parameters for Servers and Client

- IBMLAN.INI
- PROTOCOL.INI

Figure 5-19. Parameters For Servers and Clients (ws971536)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

LAN Administration GUI (1 of 2)

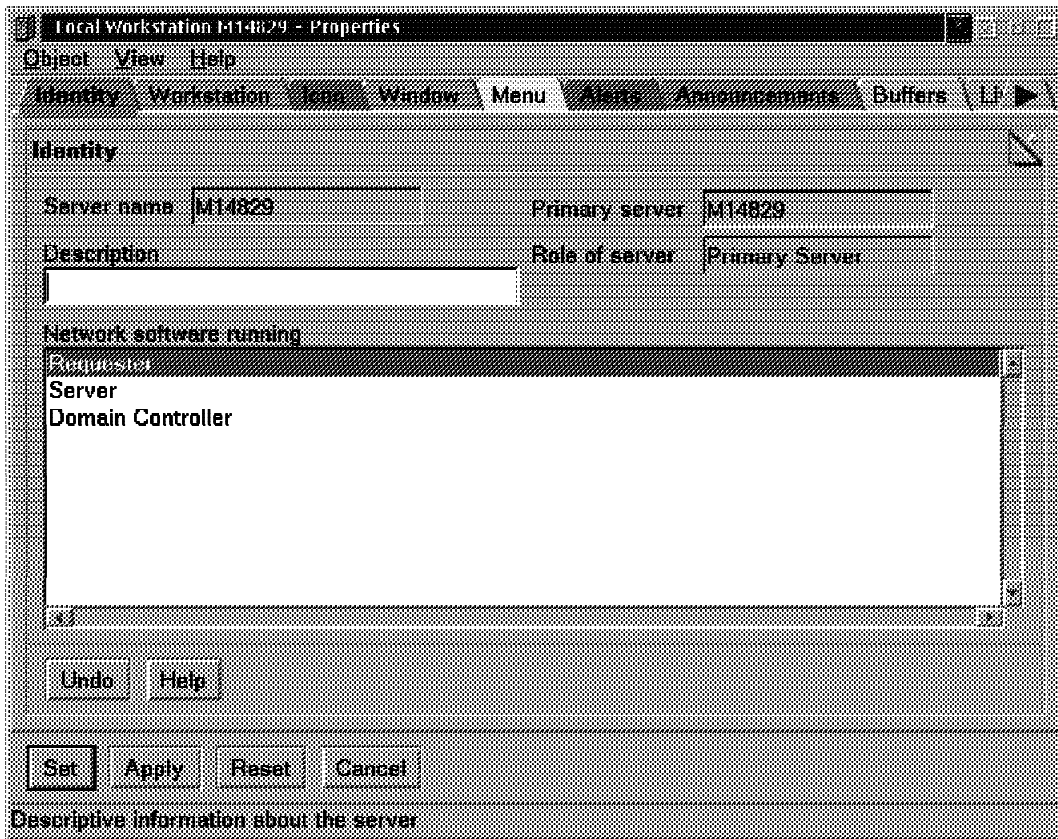


Figure 5-20. Lan Administration GUI (1 of 2) (ws971538)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

LAN Administration GUI (2 of 2)

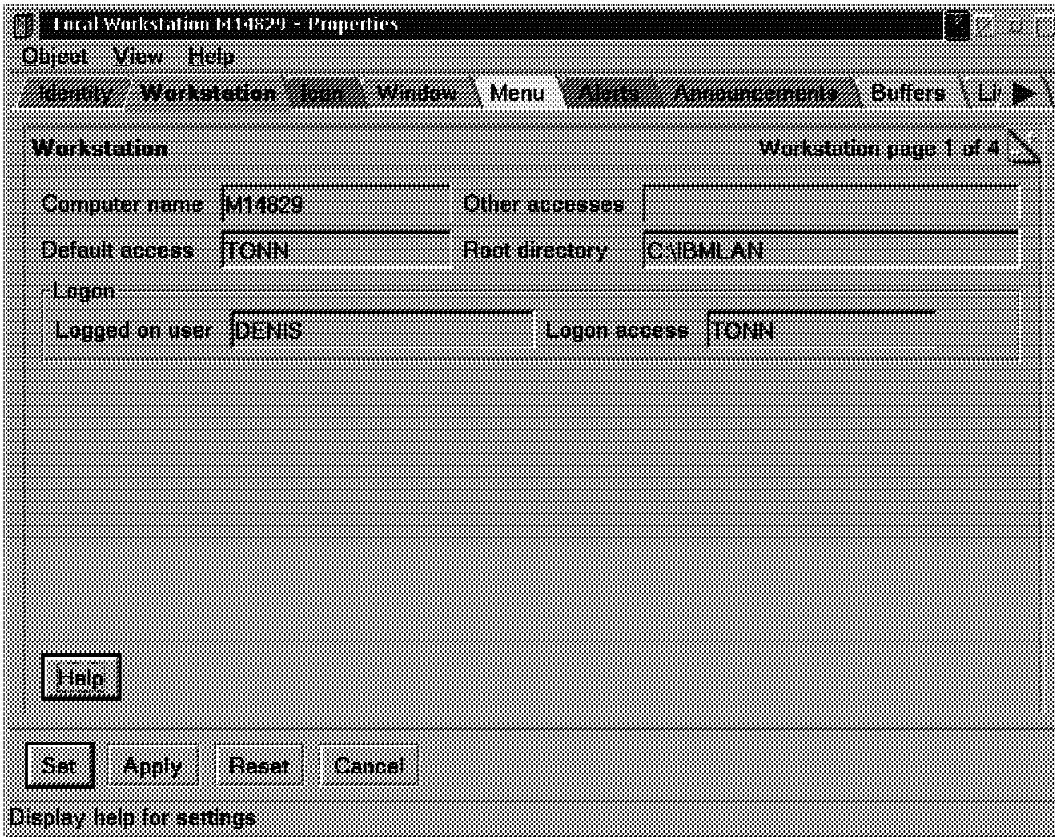


Figure 5-21. Lan Administration GUI (2 of 2) (ws971540)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Parameters (1 of 12)

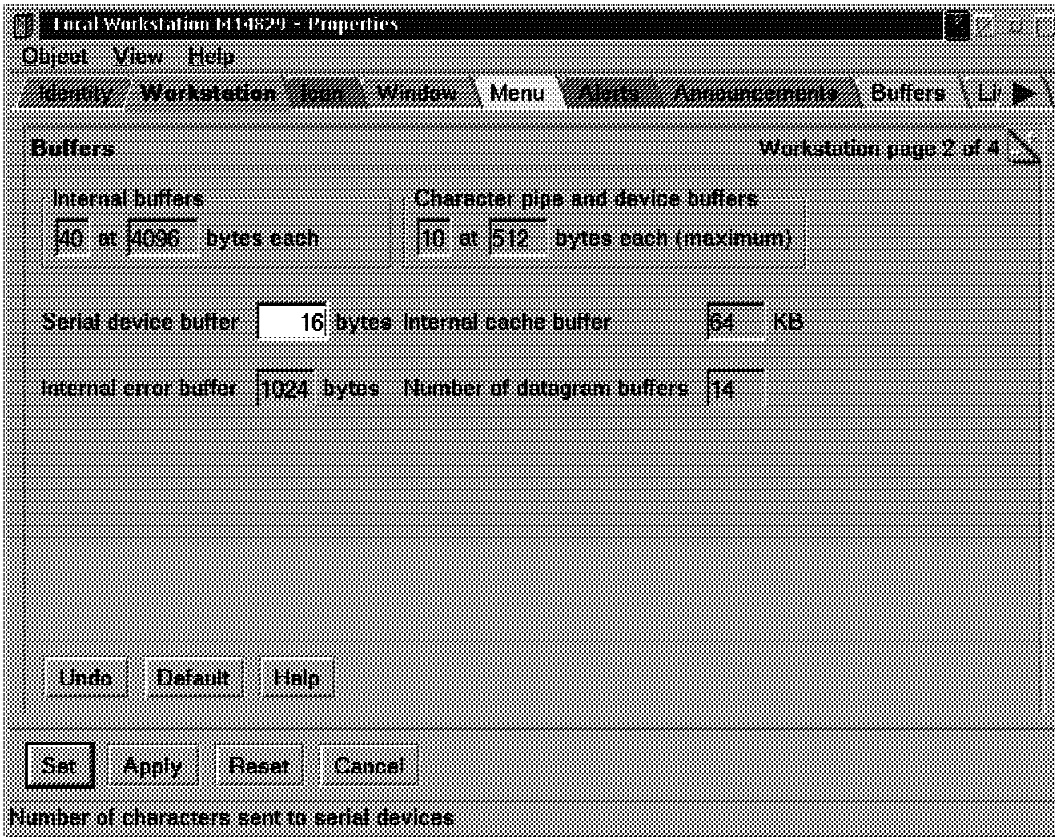


Figure 5-22. Parameters (1 of 12) (ws971542)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Parameters (2 of 12)

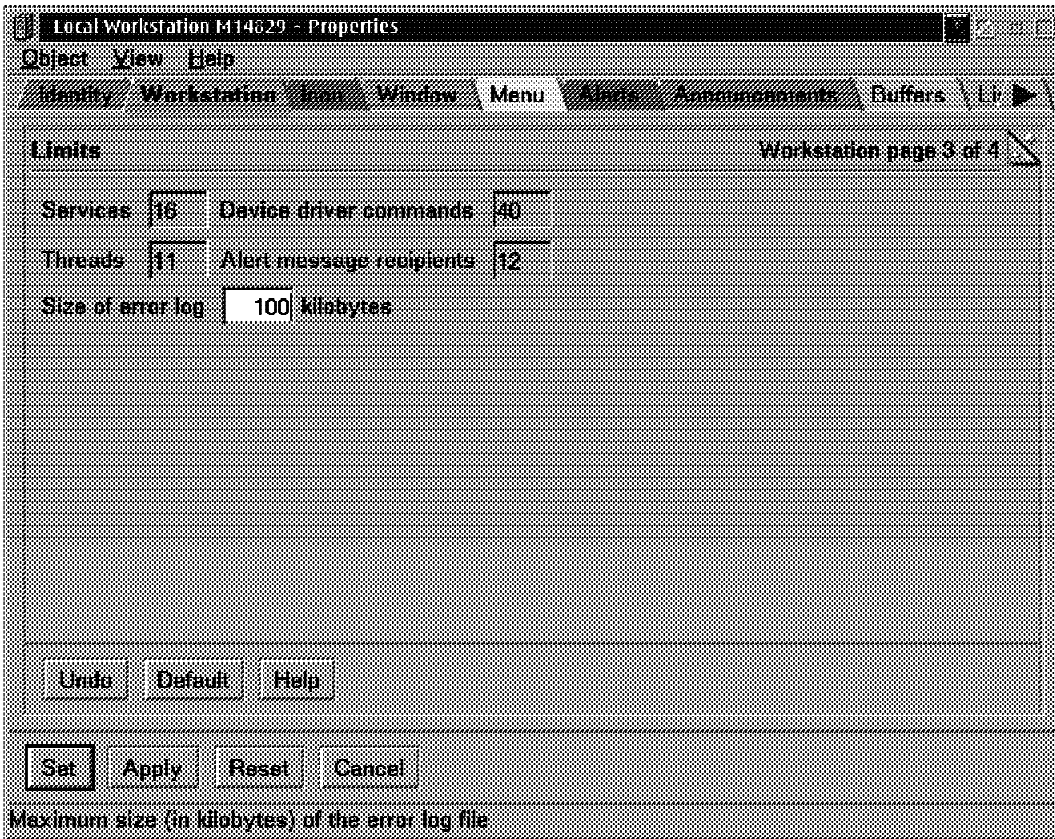


Figure 5-23. Parameters (2 of 12) (ws971544)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Parameters (3 of 12)

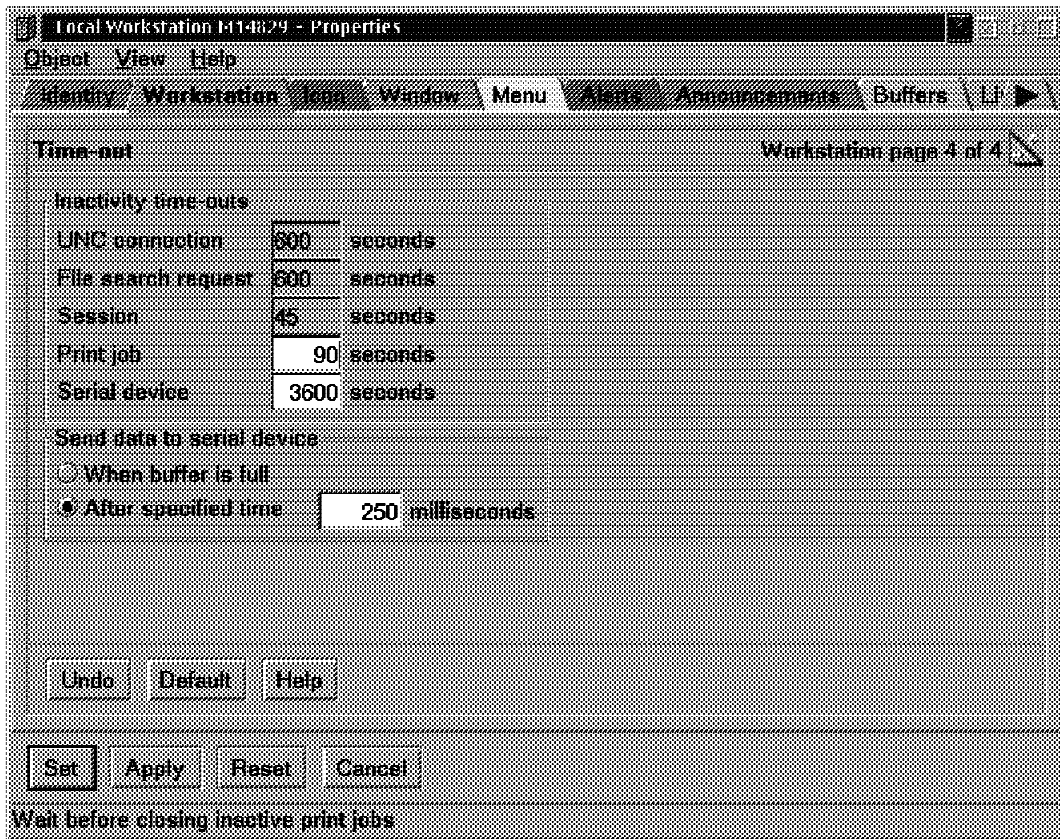


Figure 5-24. Parameters (3 of 12) (ws971546)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Parameters (4 of 12)

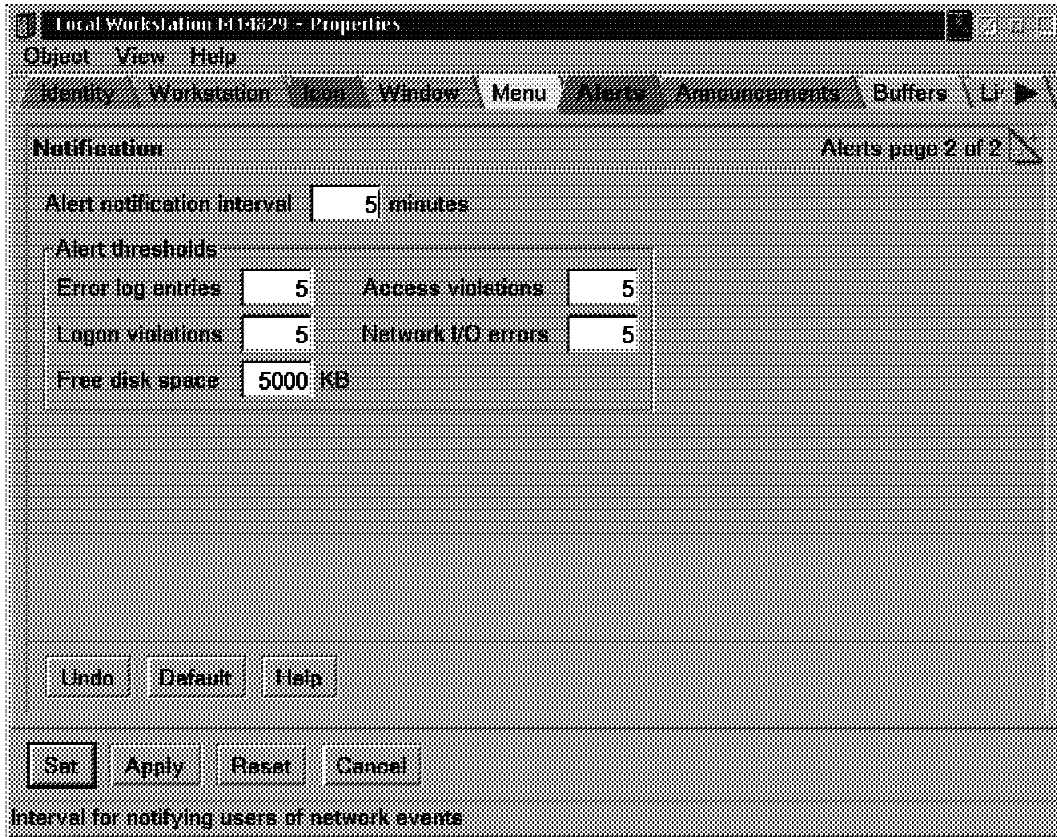


Figure 5-25. Parameters (4 of 12) (ws971548)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Parameters (5 of 12)

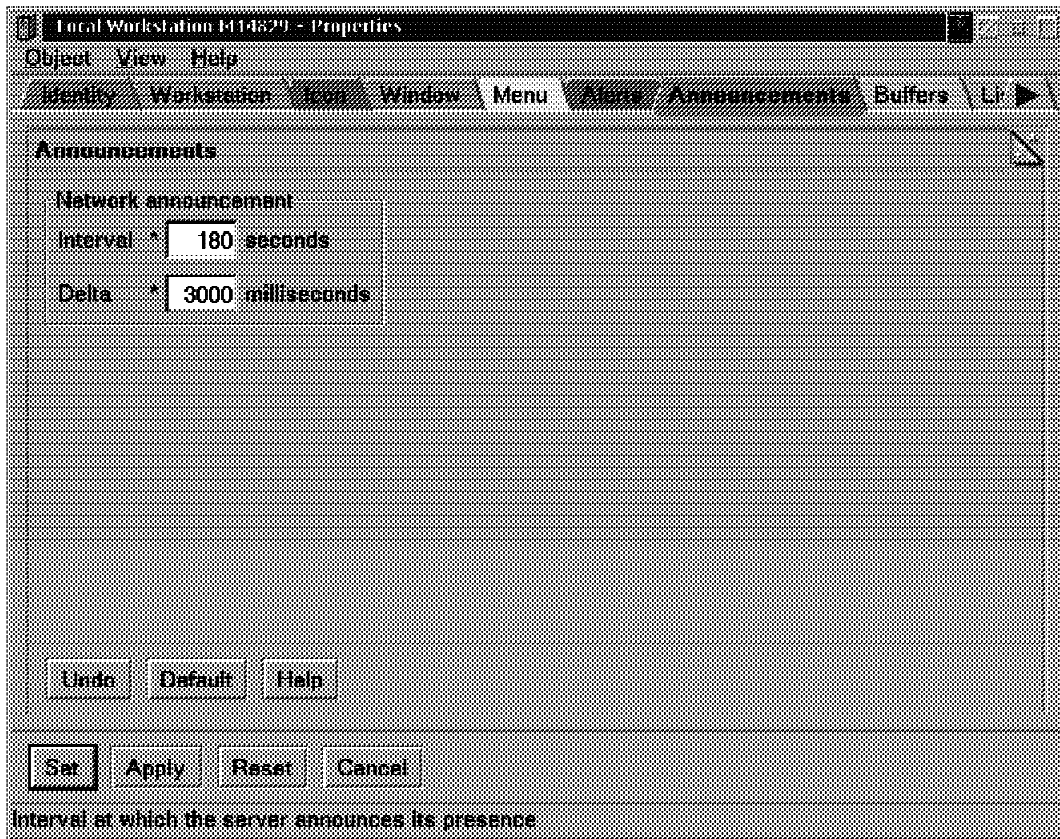


Figure 5-26. Parameters (5 of 12) (ws971550)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Parameters (6 of 12)

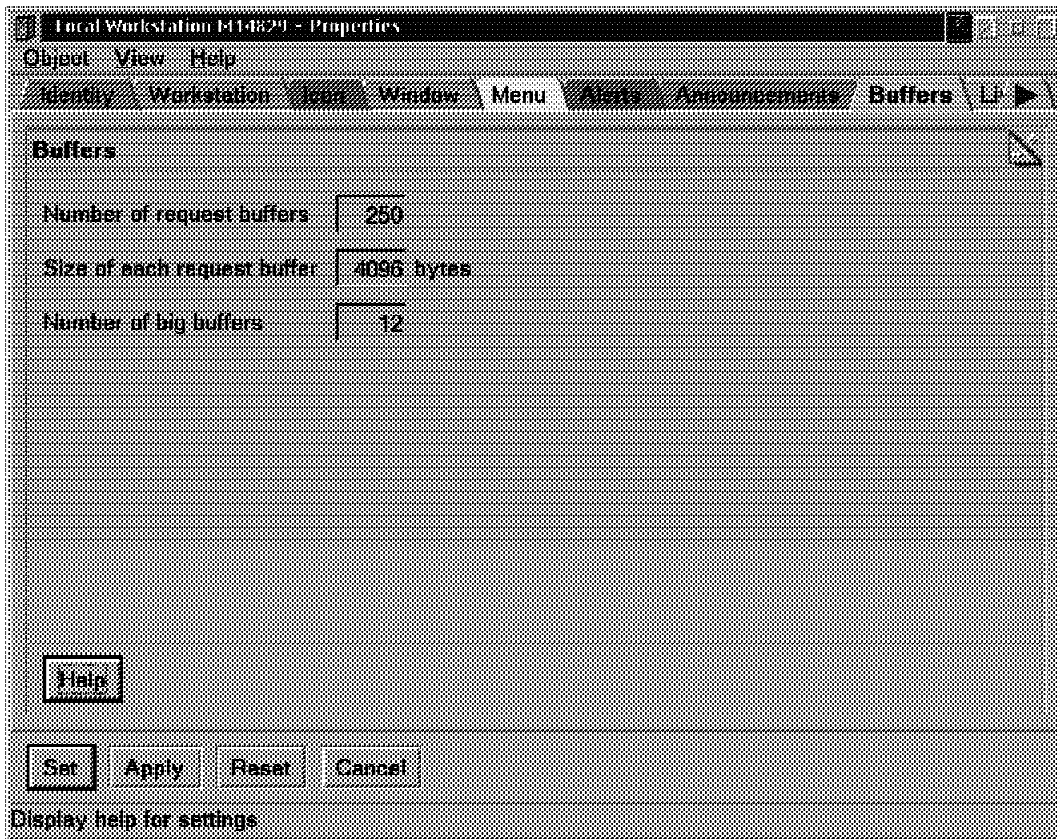


Figure 5-27. Parameters (6 of 12) (ws971552)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Parameters (7 of 12)

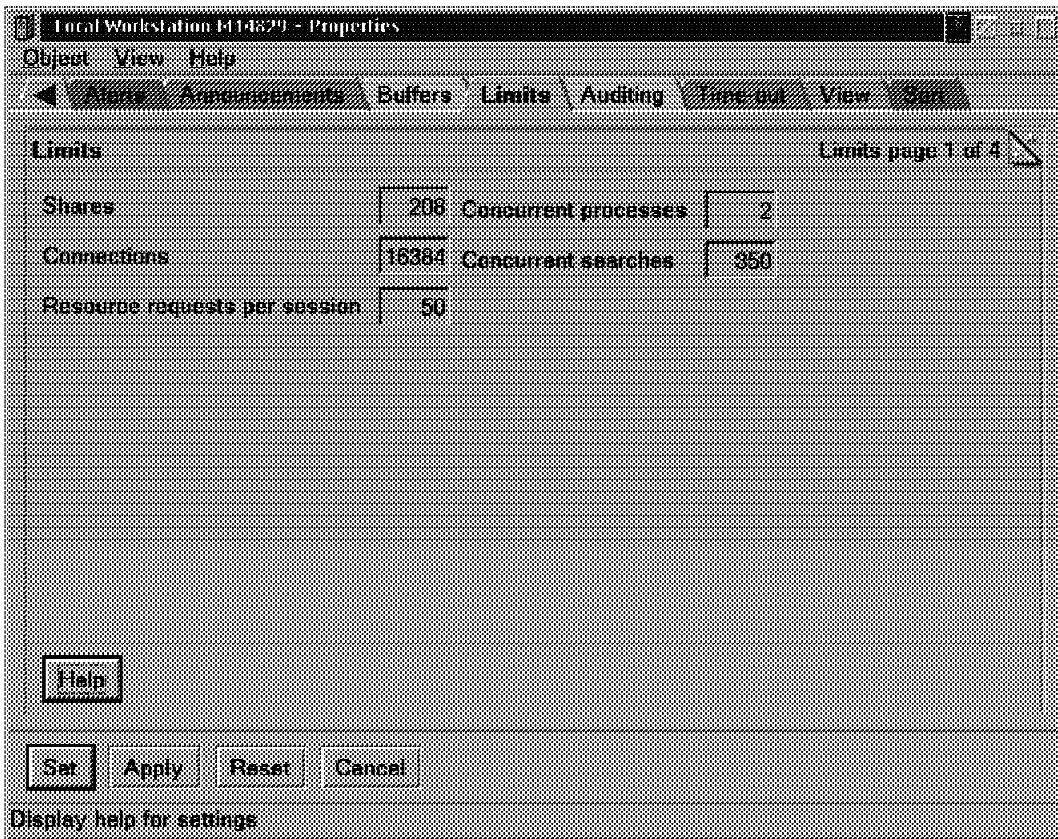


Figure 5-28. Parameters (7 of 12) (ws971554)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Parameters (8 of 12)

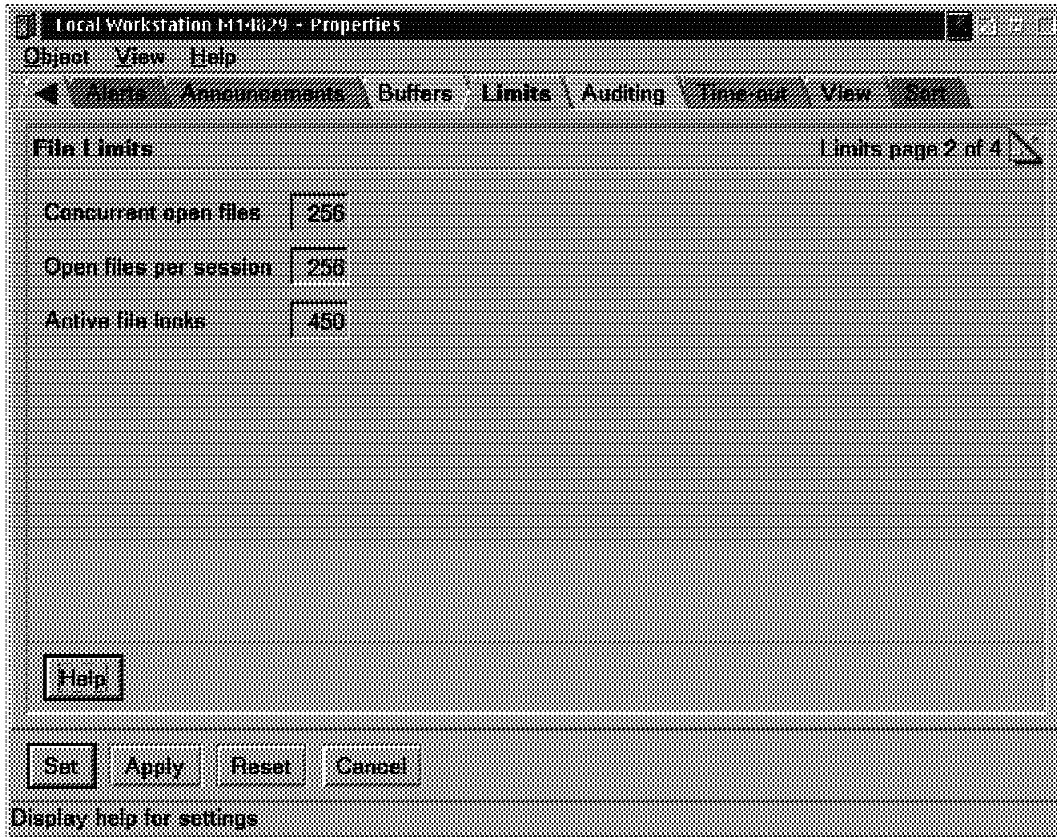


Figure 5-29. Parameters (8 of 12) (ws971556)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Parameters (9 of 12)

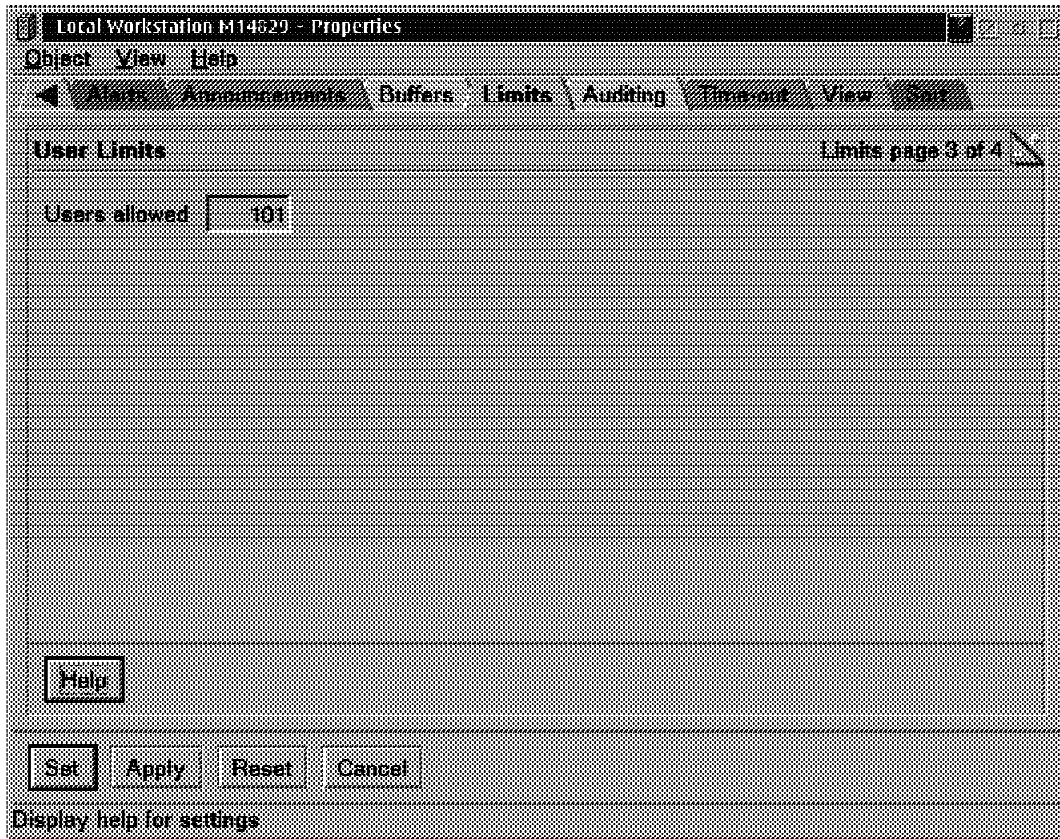


Figure 5-30. Parameters (9 of 12) (ws971558)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Parameters (10 of 12)

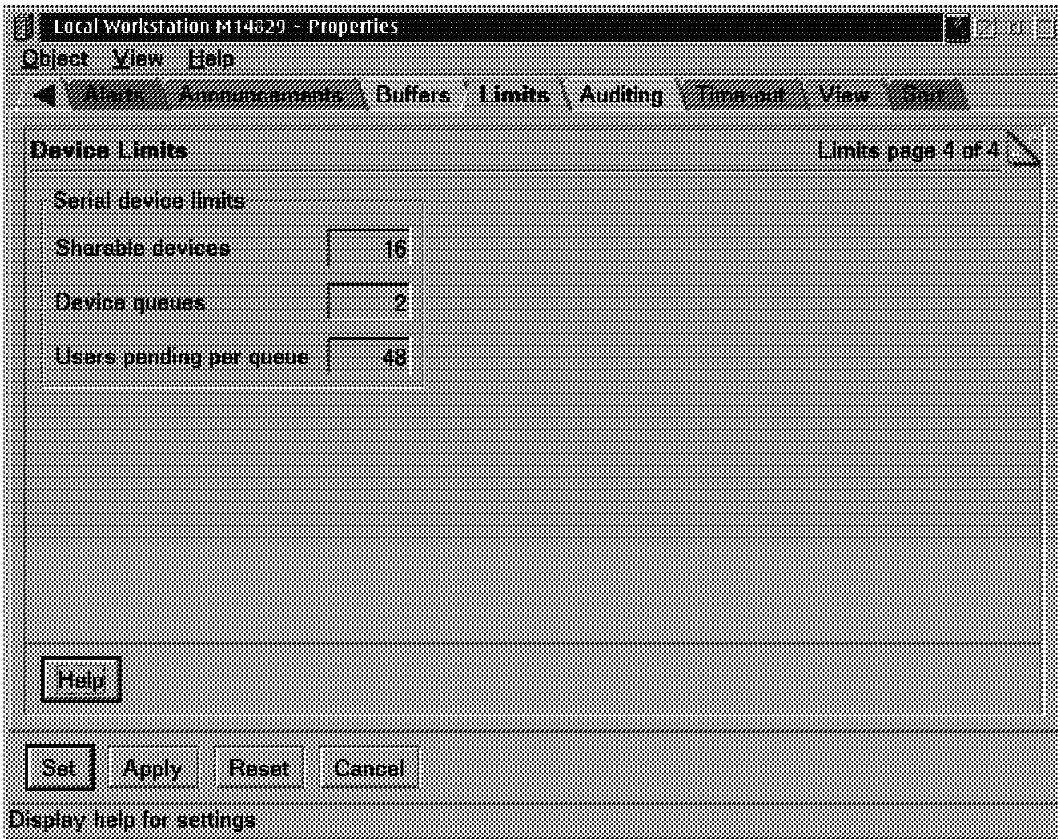


Figure 5-31. Parameters (10 of 12) (ws971560)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Parameters (11 of 12)

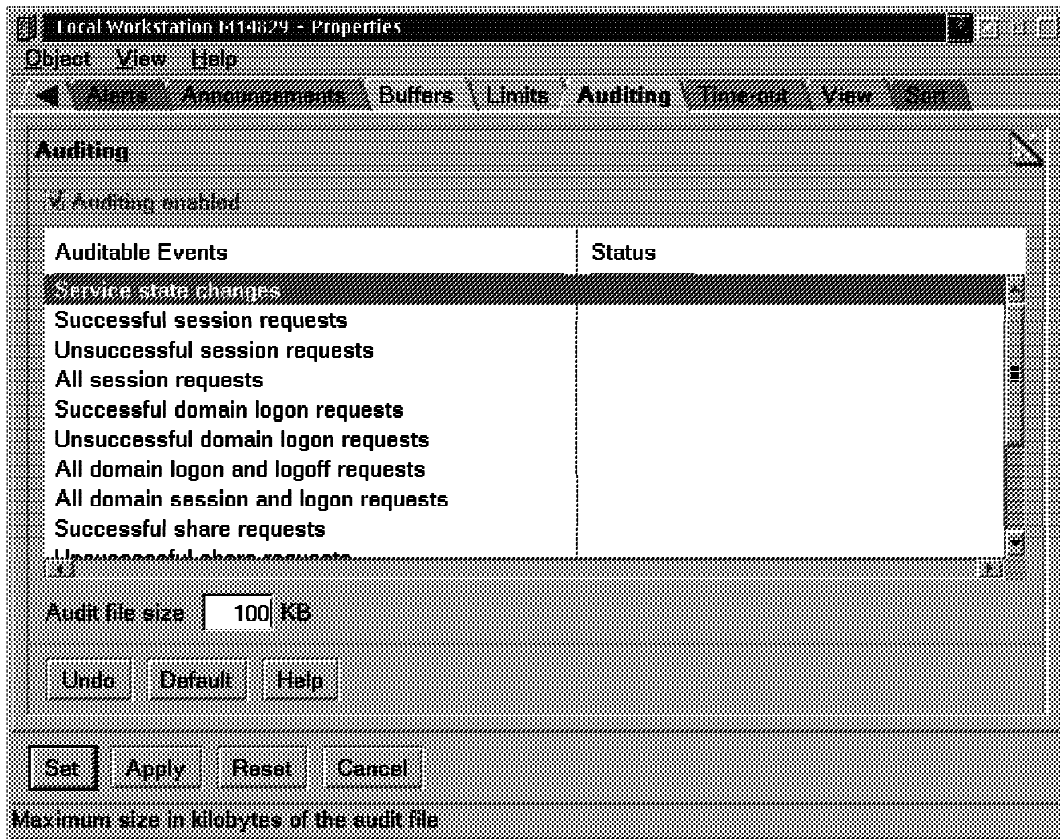


Figure 5-32. Parameters (11 of 12) (ws971562)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Parameters (12 of 12)

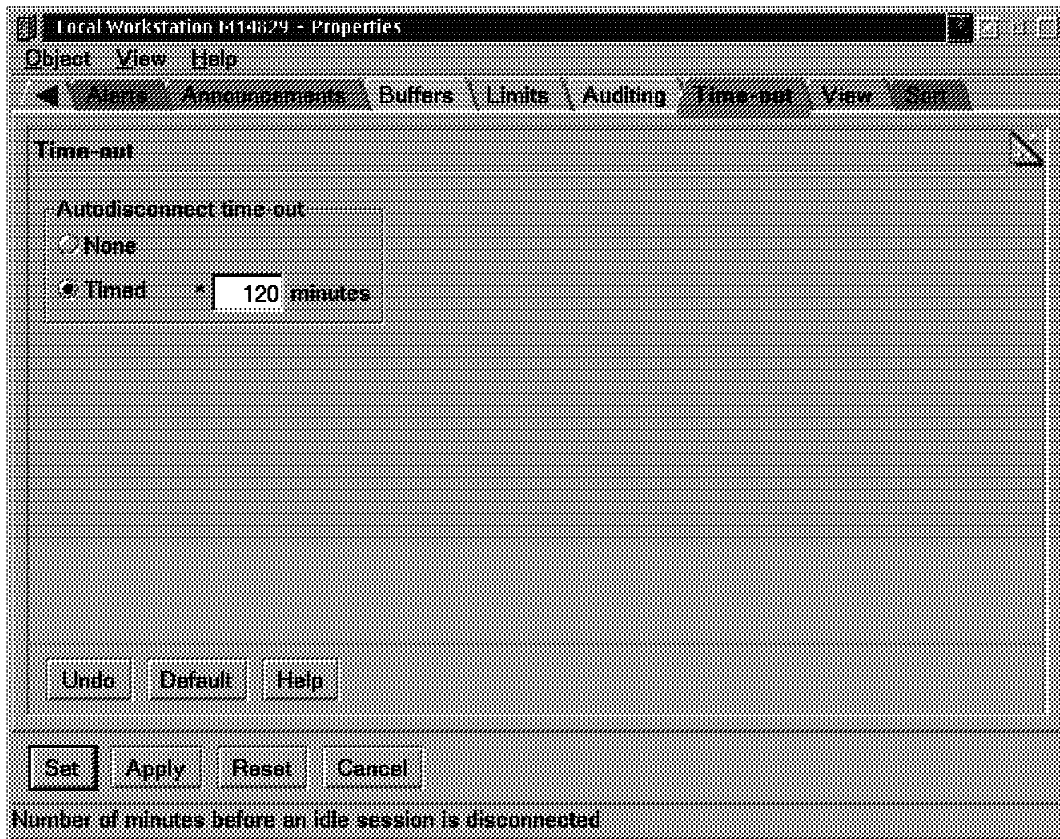


Figure 5-33. Parameters (12 of 12) (ws971564)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

View and Close Open Files

- LAN Admin GUI
- Net File <id /C>

Figure 5-34. View and Close Open Files (ws971566)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

View and Delete Active Sessions

- LAN Admin GUI
- NET SESSION <\\machineid /delete>

Figure 5-35. View and Delete Active Sessions (ws971568)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Performance Statistics

- LAN Admin GUI
- NET STATISTICS

Figure 5-36. Performance Statistics (ws971570)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Perform Auditing Tasks

- LS Audit Log Utility
- NET AUDIT

Figure 5-37. Perform Auditing Tasks (ws971572)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Manage Error Logs

- LS Error Log Utility
- NET ERROR

Figure 5-38. Manage Error Logs (ws971574)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Schedule Tasks

- Schedule tasks to run
- AT command

Figure 5-39. Schedule Tasks (ws971576)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Configure and Use an Uninterruptible Power Supply Service

- [UPS] section IBMLAN.INI
 - batterymsg Interval of time used to repeat alerts for low battery
 - batterytime Number of seconds server can run on battery
 - cmdfile CMD file to be run before the server shuts down
 - cmdtimer Number of seconds the CMD file has to complete
 - devicename UPS_DEV
 - lowbattery WARNING/SHUTDOWN if battery power is low AC ok
 - messdelay Delay between power failure and first message sent to users
 - messtime Number of seconds between messages sent
 - recharge Minutes of recharge time for each minute of battery run
 - signals Signals available from the battery (3 digits)
 - voltlevels Voltage levels for signals

Figure 5-40. Configure and Use an Uninterruptible Power Supply Service (ws971578)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

5.4 Performing Multiple Client/Server Integration

Instructor Topic Introduction

What students will do —Receive information on the procedures to integrate OS/2 Warp Server for e-business into a heterogeneous network environment.

How students will do it —Lecture and instructor-led discussion followed by lab.

What students will learn —How OS/2 Warp Server for e-business can integrate into a variety of client environments and how it can be used to manage NT server resources as part of a seamless network.

- Integrate DLS/Win3.1
- Integrate Win95/98 network neighborhood
- Manage client access rights
- Integrate and manage NT servers
- Add NT additional servers to OS/2 Warp Server for e-business domain
- Administer NT resources
- Use OS/2 GUI tools to manage NT resources

How this will help students in their job —Seamless integration of OS/2 Warp Server for e-business into an existing client and server network is required for proper management of a heterogeneous network.

Integrate DLS/Win3.1

- Client pack CD

Figure 5-41. Integrate DLS/Win3.1 (ws971580)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Integrate Win95/98 and NT Clients

- Network Neighborhood Browser service

Figure 5-42. Integrate Win98/98 and NT Clients (ws971582)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Add NT Servers to OS/2 Warp Server Domain

- Install IBM Network Users Account Manager service on NT
- Add NT server to OS/2 Warp Server domain

Figure 5-43. Add NT Servers to OS/2 Warp Server Domain (ws971584)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

5.5 Install, Configure, and Manage Remote IPL

Instructor Topic Introduction

What students will do —Receive an overview on the steps required to install, configure, and manage a Remote IPL server.

How students will do it —Lecture and instructor-led discussion. Option Lab is deferred until the final afternoon.

What students will learn —The concepts and steps needed to install, configure, and manage a RIPL server. Instructors should use Chapter 17 of the *Network Administrator Guide* as a reference, and students should have a copy available to them during class.

- Install remote IPL using the OS/2 RIPLINST utility
- Support multiple levels of the OS/2 operating system on a remote IPL server
- Create or change a RIPL client
- Delete a RIPL client
- Customize DOS remote IPL workstations
- Customize OS/2 remote IPL workstations
- Install OS/2 SVGA support on the remote IPL server
- Configure a remote IPL server/client for OS/2 SVGA video support

How this will help students in their job —Setting up a RIPL server environment can be quite complex. An overview of the steps needed and the reasons for those steps will allow the student to understand the documentation describing these steps.

Clients Supported

- OS/2 Warp 3.0
- OS/2 Warp 4.0
- DOS

Figure 5-44. Overview (ws971586)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Protocols Supported

- 802.2 RIPL/NetBEUI
- 802.2 RIPL/TCPBEUI
- DHCP PXE RIPL/TCPBEUI
- DHCP PXE RIPL/NetBEUI

Figure 5-45. Protocols Supported (ws971588)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

RIPL Process

- RIPL process controlled by:
- DHCP boot files:
 - <client>.INF
 - bpcommon.ISA
 - or
 - bpcommon.MCA
 - rfcnames.lst
 - rfcbcst.lst
- RPL.MAP
- NDISDD.PRO
- .CNF boot block definition file (only 802.2 RIPL) - multiple
- File Index Table (FIT) - multiple
- Defaults are created as part of the RIPL service install, but have to be updated before (or as part of) RIPL client definition.

Figure 5-46. RIPL Process (ws971590)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

RPL.MAP

- Unique record for each requester
- Defines Server

Figure 5-47. RPL.MAP (ws971592)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

CNF Files

- Referred to by RPL.MAP entries
- Defines the OS to be booted and the sequence

Figure 5-48. CNF Files (ws971594)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

FIT Files

- Maps requester file names to server file names
- Wild cards and prototyping allowed
- Machine (IPL) and User files (logon)

Figure 5-49. FIT Files (ws971596)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

NDISDD.PRO

- NDIS Device Driver profile
- Maps RIPL supported Network card drivers

Figure 5-50. NDISDD.PRO (ws971598)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

RIPLINST

- Installs the common client OS on the server
- Different subdirectory per OS version
- OS/2 Warp Server for e-business not supported as RIPL client

- Unpack from diskette 7 (or CD disk7 dir)
- Target install directory always x:\IBMLAN\RPL
- Use RIPLINST from target client
- Run GETRPL immediately after each RIPLINST

Figure 5-51. RIPLINST (ws9715a2)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Creating or Changing a Remote IPL Client

- Lan Admin GUI interface
- Drag Requester template
- Set properties

Figure 5-52. Creating or Changing a Remote IPL Client (ws9715a4)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Deleting a Remote IPL Client

- LAN Admin GUI interface
- Select requester and delete

Figure 5-53. Deleting a Remote IPL Client (ws9715a6)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Customizing Clients

- Modify "default" files before creating clients
- Special procedures for SVGA video install
- Refer to Chapter 17 of the *Network Administrator's Guide*

Figure 5-54. Customizing Clients (ws9715a8)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

REXX Support

- **RPLSETD.CMD**
 - Upgrades RIPL clients to use appropriate video driver
 - Updates RIPL client to IPL a different version of OS/2
 - Updates RIPL client to change the bus type
 - Updates RIPL client for local or remote swappath and page file
 - Updates OS/2 Warp 4 RIPL client to support TCP/IP
- **RPLSVGAI.CMD**
 - Updates server with SVGA support files

Refer to Chapter 17 of the *Network Administrator's Guide*

Figure 5-55. REXX Support (ws9715b2)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Unit Summary

You should now be able to:

- Manage File and DCDB Replication
- Tune a OS/2 Warp Server for e-business network
- Perform Additional Network Task
- Perform Multiple Client/Server Integration
- Understand how to install, configure, and manage Remote IPL services

Figure 5-56. Unit Summary (ws9715zz)

Notes:

Instructor Notes:

Purpose —

Details —

Transition Statement —

Unit 6. Migrating an Existing System to OS/2 Warp Server for e-business

What This unit Is About

This unit will cover an overview of the issues in migrating existing systems to OS/2 Warp Server for e-business.

What You Should Be Able to Do

After completing this unit, you should be able to:

- Plan for a migrating an existing system to OS/2 Warp Server for e-business
- Prepare a system for migration
- Migrate a system using panel installation
- Understand the issues of CID migration techniques
- Understand the steps needed for simultaneously migrating to a new hardware platform and OS/2 Warp Server for e-business

How You Will Check Your Progress

Accountability:

- Discussion and directed lab in migrating a sample OS/2 Warp Server 4 to OS/2 Warp Server for e-business.

References

SG24-5135 *Migrating to OS/2 Warp Server for e-business*

Objectives

After completing this unit, you should be able to:

- Plan for migrating an existing system to OS/2 Warp Server for e-business
- Prepare a system for migration
- Understand the issues of CID migration techniques
- Understand the steps needed for simultaneously migrating to a new hardware platform and OS/2 Warp Server for e-business
- Migrate a system using panel installation

Figure 6-1. Objectives (ws971600)

Notes:

This Unit cannot possibly cover all the issues involved in migrating an existing system in the time allotted for it. Emphasis should be placed on students locating and understanding the sections of SG24-5135 that cover the various migration options.

Instructor Notes:

Purpose — This is an overview of some of the issues of migrating an existing system to OS/2 Warp Server for e-business.

Details — @Bullet@ Review existing system information for each system to be migrated

- For each server to be migrated, assess specific installation requirements
- Determine if system hardware requirements are met
- Determine if there is enough freespace to install the components you want
- Determine volumes, partitions, and file systems
- Determine if you want or need to change the existing file system
- Determine if you need to apply any special prerequisite fixpak requirements
- Determine system downtime for migration and its acceptability
- Determine if CID-based installation will be used for migration
- Investigate and resolve potential conflicts of OS/2 Warp Server for e-business with existing disk utilities and customer written tools
- Perform upgrades and apply fixpaks (if necessary)
- Upgrade to Version 2 of Workspace On-Demand before migration (if Version 1 is currently installed)
- Gather hardware support diskettes, adapter device drivers, and peripheral device drivers (if necessary)
- Create disaster recovery diskettes with any additional device drivers needed (if not already created)
- Generate and gather important configuration information
- Generate other useful configuration information using the LAN Server Management Tools (LSMT) (on the CD ROM in the IBM Migration Redbook)
- Document printer and queue definitions
- Back up important system, user, and configuration data
- Back up configuration data to be restored after installation
- Back up directory limits
- Back up access control information
- Back up the Domain Controller Database (if there is no Backup Domain Controller)
- Remove existing programs that are incompatible with OS/2 Warp Server for e-business
- Remove local security
- Remove LAN Distance® (if installed on the system)
- Remove HPFS386 access controls (if migrating from a HPFS386 system)
- Remove IBM Peer for OS/2 (if previously installed on the system)
- Remark out the NET START SERVER statement
- Remark out other programs and statements to expedite migration
- Deactivate fault tolerance (if running OS/2 LAN Server Fault Tolerance)
- Check that the system is actually working as expected
- Remove the Access Control Lists on the system disk
- Install the new system
- Verify, accept, or change the configuration settings that have been preserved in the configuration panel when it appears
- Check that the server still works as expected
- Resynchronize the password of the server, if necessary
- Verify that all of its functions have been correctly restored
- Switch back the roles of the Primary and Backup Domain Controllers (if required)

- Modify tuning parameters that were reset to their default values
- Restore directory limits that were previously saved
- Restore access control information
- Unremark the NET START SERVER statement
- Unremark other programs and statements that were previously “remarked out”

Additional Information —Frequent reference to SG24-5135 will be required.

Transition Statement —Lets look at the steps needed to move from a currently installed system to OS/2 Warp Server for e-business.

6.1 Planning the Migration

Instructor Topic Introduction

What students will do — Students will review the various issues and procedures in preparing to migrate an existing system to OS/2 Warp Server for e-business.

How students will do it — Lecture and Instructor-led discussion followed by lab. Students will use the document, *Migrating to OS/2 Warp Server for e-business* (SG24-5135)

What students will learn — Students will learn the procedures and issues to consider when planning for a migration to OS/2 Warp Server for e-business.

- Review existing system information for each system to be migrated
- For each server to be migrated, assess specific installation requirements
- Determine if system hardware requirements are met
- Determine if there is enough freespace to install the components you want
- Determine volumes, partitions, and file systems
- Determine if you want or need to change the existing file system
- Determine if you need to apply any special prerequisite fixpak requirements
- Determine system downtime for migration and its acceptability
- Determine if CID-based installation will be used for migration
- Investigate and resolve potential conflicts of OS/2 Warp Server for e-business with existing disk utilities and customer written tools

How this will help students in their job — Migrating existing systems is an essential part of an administrator's tasks.

Migration Roadmap

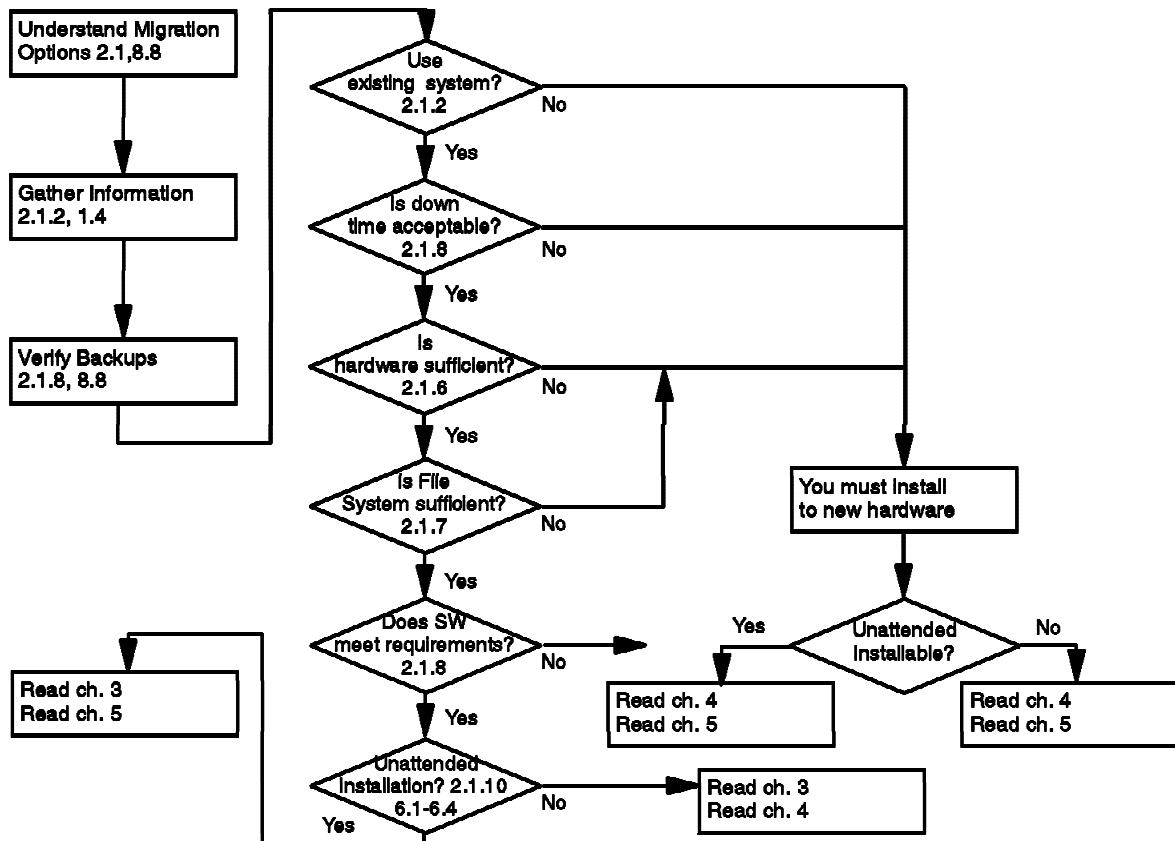


Figure 6-2. Migration Roadmap (ws971602)

Notes:

When reading through the roadmap, please write the relevant references down and continue going through the roadmap. That way you'll get a list of chapters and sections that are relevant to your environment.

Together with the other contents of this chapter, the roadmap is intended as a central information hub that will point you to the right places for the actual information. Going through the whole set of questions will help you to make the right assessments.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Understanding Different Options for Migration

- Migrate 'on top' of an Existing Configuration
- Migrate Configuration to a New Machine
- Migrate to a New Machine with New Configuration

Figure 6-3. Understanding Different Options for Migration (ws971604)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Data Gathering (1 of 4)

Information needed	Your decision
What is the CPU speed and type?	
What amount of RAM is installed in your systems?	
How large are the handdisks in your servers?	
What are the partition size?	
How much harddisk freespace is available?	
What products and services are currently installed on each of your servers?	
Can the server be taken down for migration? How long may that period last?	
Will software distribution be used to install/migrate the servers?	

Figure 6-4. Data Gathering (1 of 4) (ws971606)

Notes:

Run CHKINST

Chkinst is a utility supplied with OS/2 Warp Server for e-business and can be used to check your installation and generate a report of preparatory steps you have to perform before doing the actual setup. We recommend that you run it against the servers you intend to migrate and review the logfile generated.

This utility searches for components on the checked system that must be removed from the existing system prior to migration. Such components include LAN Distance, IBM Peer or Local Security.

It also detects components (OpenDoc, AskPSP, TrueMode) that are not supported in this release of OS/2 Warp Server for e-business and that may cause the new OS to fail. In that case the CHKINST.EXE issues a warning that installation will remove these components.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Data Gathering (2 of 4)

- Do you have a proven backup?
- Do you want to install on different hardware?
 - SMP versus UNI considerations
 - I2O support

Figure 6-5. Data Gathering (2 of 4) (ws971608)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Data Gathering (3 of 4)

Does the hardware meet the prerequisites/recommendations?

Component	Hard Disk Space Requirement (MB)
OS/2 Warp Based Operating System (default installation)	96.7
Optional OS/2 Warp Components	150
File and Print Sharing Services	15.0
TCP/IP Services	30.0
Remote Access Services	5.9
Netscape Communicator	11.0
Tivoli Management Agent	1.5
Personally Safe 'n' Sound	7.2
LDAP Services Toolkit	4.2
Advanced Print Services	54.0
MPTS	16.0
First Failure Support Technology (FFST)	0.1
Online Books	10.0

Figure 6-6. Data Gathering (3 of 4) (ws971610)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Data Gathering (4 of 4)

- Is repartitioning necessary?
- Do you want or need to change the existing file system?
 - File system and hard disk management changes
 - Drive letter sequence
- OS/2 now supports four hard disk file systems:
 - FAT
 - HPFS
 - HPFS386 (with license)
 - New JFS

Figure 6-7. Data Gathering (4 of 4) (ws971612)

Notes:

File system and Hard disk management changes

The most important thing is that drive letters are now freely assignable to volumes.

Drive letter sequence

Hard disk partitions now can be assigned any letter you chose. If you have tools or scripts that rely on a sequential assignment of drive letters, be aware that they might have to be reworked if you exploit this.

The CD-ROM is now assigned the first free drive letter, which might not be after the last hard drive. This also may impact your tools. You can use the `RESERVEDRIVELETTER=` statement in `config.sys` to move the CD-ROM to a convenient letter.

A volume in turn can consist of one or more partitions (both logical and primary). However, once installed, OS/2 still needs the drive letter of the bootable volumes to stay the same. Changing the assigned drive letter of a bootable volume will subsequently cause the boot process to fail.

Grouping multiple partitions into a larger volume is called disk spanning. Different partitions in volume do not have to reside on the same physical disk.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

File Systems

	FAT	HPFS	HPFS386	JFS
Bootable	Yes	Yes	Yes	No
Maximum Filesize	2 GB	64 GB	64 GB	2 TB
Maximum Volumesize	2 GB	2 GB	2 GB	2 TB
Disk spanning	Yes	Yes	Yes	Yes
Expand on line	No	No	No	Yes
Sparse Files	No	No	No	Yes
Unicode Filename	No	No	No	Yes
Maximum Cache size	14 MB	2 MB	ca 200 MB (320 MB- HEAP)	cs 200 MB
Max. no of file opens	65536	65536	65536	65536
Max no of file finds	3072	3072	8192	32768
ACL stored	in NET.ACC	in NET.ACC	In Filesystem (Fnode)	in Filesystem (Inode)
Number of ACLs	8192	8192	unlimited	unlimited
Max. no of file per directory	512 on the root directory	limited by DASD space	limited by DASD space	4,000,000,000
Bad block relocation	No	Yes	Yes	Yes via LVM
DASD Limits	No	No	Yes	No
Software Fault Tolerance	No	No	Yes	No

Figure 6-8. File Systems (ws971614)

Notes:

FAT

FAT is still supported as a bootable filesystem and for backwards compatibility and data interchange. Installation of OS/2 Warp Server for e-business is generally not recommended.

HPFS

HPFS is the second bootable filesystem that is supported in OS/2 Warp Server for e-business. JFS is faster than HPFS and offers better scalability, caching and shorter recovery times. Thus it can replace HPFS in all applications except for the boot partition.

JFS

JFS is especially suited for application servers, for example, hosting for example the data of a Webserver or a Lotus Notes server. JFS can be used to replace (normal) HPFS in almost all cases. It offers bigger and faster caching capabilities and improves performance over HPFS. Currently JFS is the only filesystem that can be extended by

adding more partitions to a volume, thus increasing available filespace. JFS also offers better performance and scalability on SMP machines due to the changes in the subsystem and features special optimizations for IP based services. More information on this can be found in the Redbook Inside OS/2 Warp Server for e-business SG-24-5136-00.

HPFS386

HPFS386 is best used for serving traditional 802.2 RIPL and WSOD Clients. It is also the only choice if you need DASD limits or the fault tolerance feature since JFS does not implement these.

Before installing over a machine with HPFS386 you have to remove the HPFS386 DASD limits and ACL's as well as the fault tolerance from the target volume.

Since there is no way to convert an existing volume to JFS, data and applications that you want to move to JFS will have to be handled in a separate step, after migrating the basic system function. The basic idea is that you have to copy the data from one filesystem to the other. Backup/Restore is one option, another is using a temporary disk.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Does Your Software Meet the Requirements for Migration?

Component	CSD Level
OS/2 2.11	XR_6200
LAPS 2.20.2	WR_7045
OS/2 LAN Server 3	IP_7045
TCP/IP 2.0	UN_0000

* This is needed for compatibility with the REXX procedures in this book.

OS/2 LAN Server 3 Fixlevel prior to the Migration

Component	CSD Level
OS/2 Warp 3	XR0W038
IBM OS/2 LAN Adapter and Protocol Support	WR08415
IBM OS/2 LAN Server	IP08260
IBM TCP/IP Version 2.0	?

OS/2 LAN Server 4 Fixlevel prior to the Migration

Component	CSD Level
OS/2 Warp 3	XR0W038
IBM OS/2 LAN Adapter and Protocol Support	WRK08610
IBM OS/2 LAN Server	IP08528
IBM TCP/IP Version 3.1	UN00002

OS/2 LAN Server Fixlevel prior to the Migration

Figure 6-9. Does Your Software Meet the Requirements for Migration? (ws971616)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Data Gathering

- Is server downtime acceptable?
- Panel Driven Installation or CID-based?

Figure 6-10. Data Gathering (ws971618)

Notes:

DASD Limit priming

DASD limit priming is performed by HPFS386 at initialization each time after running CHKDSK. It can take extended periods of time on servers with big partitions and many DASD limits applied. Since it is part of the filesystem initialization, it is part of the total time for server startup.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

6.2 Preparing to Migrate

Instructor Topic Introduction

What students will do — Students will review the steps required to prepare a system for migration.

How students will do it — Lecture, instructor-led discussion and reference to SG24-5135.

What students will learn — Students will learn the steps needed to prepare an existing system for a migration to OS/2 Warp Server for e-business.

- Perform upgrades and apply fixpacks (if necessary)
- Upgrade to Version 2 of Workspace On-Demand before migration (if Version 1 is currently installed)
- Gather hardware support diskettes, adapter device drivers, and peripheral device drivers (if necessary)
- Create disaster recovery diskettes with any additional device drivers needed (if not already created)
- Generate and gather important configuration information
- Generate other useful configuration information using the LAN Server Management Tools (LSMT) (on the CD ROM in the IBM Migration Redbook)
- Document printer and queue definitions
- Back up important system, user, and configuration data
- Back up configuration data to be restored after installation
- Back up directory limits
- Back up access control information
- Back up the Domain Controller Database (if there is no Backup Domain Controller)
- Remove existing programs that are incompatible with OS/2 Warp Server for e-business
- Remove local security
- Remove LAN Distance (if installed on the system)
- Remove HPFS386 access controls (if migrating from a HPFS386 system)
- Remove IBM Peer for OS/2 (if previously installed on the system)
- Remark out the NET START SERVER statement
- Remark out other programs and statements to expedite migration
- Deactivate fault tolerance (if running OS/2 LAN Server Fault Tolerance)

How this will help students in their job — Administrators need to know the steps needed to migrate an existing system to OS/2 Warp Server for e-business.

Special Considerations/Caveats (1 of 9)

- FDISK command not available
- NT coexistence on same machine
- Installation of OS/2 Warp Server for e-business on a machine that already has Windows NT installed will keep the data on the NT partition intact. In some configurations the pre-existing NT system might not be bootable after OS/2 Warp Server for e-business Installation.

Figure 6-11. Special Considerations/Caveats (1 of 9) (ws971620)

Notes:

In OS/2 Warp Server for e-business the FDISK command has been replaced by the LVM command to add the support for 'sticky' drive letters and logical volumes.

However, this means that any tool that relies on FDISK for partitioning or information will have to be reworked to use LVM.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Special Considerations/Caveats (2 of 9)

- Some HPFS386 features not available on JFS
- DASD limits
 - The current version of JFS shipped with OS/2 Warp Server for e-business does not support DASD limits.
 - Depending on your requirements there are several possible workarounds:
 - Keep the resources that need directory limits on a HPFS386 formatted Volume
 - Use CHKSTOR as a replacement if it is sufficient to send an alert to the administrator when the limit is exceeded.
- Fault Tolerance
 - There is no replacement for the HPFS386 fault tolerance feature on JFS. Current server usually has a RAID adapter that can be used to perform this function in hardware.

Figure 6-12. Special Considerations/Caveats (2 of 9) (ws971622)

Notes:

If you still have to rely on the software disk mirroring provided by HPFS386 the only option is to keep HPFS386.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Special Considerations/Caveats (3 of 9)

- Drive letters referenced in Config.SYS
- Although LVM usually can change a drive letter 'on the fly', without rebooting, your applications still might rely on the letter that was previously assigned.
 - Change all the occurrences in config.sys to the new drive and reboot.
 - Create a Script that updates the variables before starting the application.
 - If there are references in LIBPATH, use BEGINLIBPATH or ENDLIBPATH instead.
 - Move the driver to your boot drive and change the invocation in CONFIG.SYS
 - Or change only the CONFIG.SYS

Figure 6-13. Special Considerations/Caveats (3 of 9) (ws971624)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Special Considerations/Caveats (4 of 9)

CD-Rom Drive letter changes requiring reboot

The RESERVEDRIVELETTER statement in config.sys can help to avoid unnecessary reboots when 'juggling' the drive letters. It can be used to force the CD-ROM to a convenient letter.

RESERVEDRIVELETTER Syntax
Add a line with
RESERVEDRIVELETTER=<letter>
anywhere in config.sys

The CD-Rom will get the next drive letter after <letter> upon the next reboot.

Figure 6-14. Special Considerations/Caveats (4 of 9) (ws971626)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Special Considerations/Caveats (5 of 9)

- Naming and LVM
- LVM introduces a new level of abstraction from the underlying disk structures and allows you to name each of the elements.
 - Harddisk
 - Compability Volumes, which when bootable, should keep the same letter
 - LVM Volumes, which are not bootable and might contain multiple partitions on several physical drives
 - Partition

Element	Proposed Name
Physical Disk	IDE_0, IDE_1 or RAID_1, RAID_2 ...
Bootable Compability Volumes	WarpServer_C, SOS_D, etc.
Nonbootable Compability Volumes	Arbitrary name denoting the content
LVM Volumes	
Partition	D0P0 for Disk0 Primary0, D-P1 for disk 0 primary 1, etc, D0L0, D1L0

Figure 6-15. Special Considerations/Caveats (5 of 9) (ws971628)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Special Considerations/Caveats (6 of 9)

- NT Server integration
 - The IBM Network Account Manager for managing WIN NT additional servers only works with WIN NT V4.0, not with WIN NT 3.51.
 - The Network Account Manager relies on a Primary Domain controller with OS/2 Warp Server for e-business installed on it. This might impact the order in which you migrate your servers.

Figure 6-16. Special Considerations/Caveats (6 Of 9) (ws971630)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Special Considerations/Caveats (7 of 9)

Workspace On-Demand 1.0

It is *not* recommended to install OS/2 Warp Server for e-business on a server that has Workspace On-Demand Release 1.0 installed. OS/2 WarpServer for e-business is intended to support Release 2 of Workspace On-Demand.

Figure 6-17. Special Considerations/Caveats (7 of 9) (ws971632)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Special Considerations/Caveats (8 of 9)

- **Backup Software and JFS**
 - JFS supports now larger files under OS/2 than any previous OS/2 version and also has the feature to support sparse files. Make sure that your backup software can handle these features before you start to exploit them.

 - Sparse files that are backed up with software that does not support them will become 'dense' files upon restore.

Figure 6-18. Special Considerations/Caveats (8 of 9) (ws971634)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Special Considerations/Caveats (9 of 9)

- Components not in the OS/2 WarpServer for e-business package

Components and Products removed by OS/2 Warp Server for e-business installation
Ultimedia Video In
OpenDoc
VoiceType
Coaches installation support
MobileFileSync
Password Coordinator
Ultimedia Mail
System View Agent
Warp 4 Tutorial
Warp 4 Hibernate and Trap Door Support (aka True Dos) support
The following Bonus Pack Utilities
Ask PSP
Hyper Access Terminal
CompuServe Info Manager
IBM Works
VideoIN for OS/2
RSJ Remote Support for OS/2

Figure 6-19. Special Considerations/Caveats (9 of 9) (ws971636)

Notes:

While most components listed below were not shipped with previous OS/2 WarpServer or LANServer Versions, you should be aware that the installation process will delete the listed products if they are found. Naturally you will be warned prior to deletion. However, there is no way to keep the installation process from removing these components.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

6.3 Option #1: Migrating From the Panel

Instructor Topic Introduction

What students will do — Students will review the steps for migrating using the panel installation (similar to a new install).

How students will do it — Lecture and Instructor-led discussion. Reference SG24-5135.

What students will learn — Students will learn the steps to perform a migration using the attended installation panels.

- Check that the system is actually working as expected
- Remove the Access Control Lists on the system disk
- Install the new system
- Verify, accept, or change the configuration settings that have been preserved in the configuration panel when it appears
- Check that the server still works as expected
- Resynchronize the password of the server, if necessary
- Verify that all of its functions have been correctly restored
- Switch back the roles of the Primary and Backup Domain Controllers (if required)
- Modify tuning parameters that were reset to their default values
- Restore directory limits that were previously saved
- Restore access control information
- Unremark the NET START SERVER statement
- Unremark other programs and statements that were previously “remarked out”

How this will help students in their job — This will probably be the most common method used to migrate a current system to OS/2 Warp Server for e-business.

Preparation Setup

Preparation Step	refer to Chapter	Check when done
Verify Fixpack Prerequisites	Chapter 4.2	
Coexistence with Windows NT	Chapter 4.3	
Perform a Test Installation	Chapter 4.4	
Evaluate Disk Utilities and Customer Written Tools	Chapter 4.5	
Have Access to Hardware Configuration Disks	Chapter 4.6	
Have Copies of Important Configuration Files Available	Chapter 4.7	
Backup your System	Chapter 4.8	
Prepare for Disaster Recovery	Chapter 4.9	
Remove LAN Distance	Chapter 4.10	
Remove Local Security	Chapter 4.11	
Back Up Directory Limits	Chapter 4.12	
Back Up Access Control Information	Chapter 4.13	
Save the DCDB	Chapter 4.14	
Remove HPFS386 Access Controls	Chapter 4.15	
Boot-Time Considerations	Chapter 4.16	
Remove IBM Peer	Chapter 4.17	
Document Printer and Queue Definitions	Chapter 4.18	
Document Multimedia Device Configuration	Chapter 4.19	
Deactivate Fault Tolerance	Chapter 4.20	

Figure 6-20. Preparation Setup (ws971638)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Tools for the Preparation

Preparation Step	Tools	provided by
Backup your System	SRVBU	CD
Prepare for Disaster Recovery	MAKEDISK	LAN Server
Remove Local Security	PREPACL	LAN Server
Back Up Directory Limits	BACKDASD, SRVBU	CD, CD
Back Up Access Control Information	BACKACC, LSMT, SRVBU	LAN Server, CD, CD
Save the DCDB	SRVBU	CD
Remove HPFS386 Access Controls	PREPACL	LAN Server
Document Printer and Queue Definitions	BACKPRN	CD

Figure 6-21. Tools for the Preparation (ws971640)

Notes:

Verify Fixpack Prerequisites

Fortunately there is not much to say so far. Neither during our testing nor during IBM FVT were any problems discovered causing migration failure or malfunction of OS/2, MPTS, TCP/IP or file and print services. The testing environment has different fixlevels on OS/2 LAN Server 3, OS/2 LAN Server 4, OS/2 WARP Server 4 and OS/2 WARP Server SMP.

Coexistence with Windows NT

You may have OS/2 LAN Server and Windows NT side by side installed on a test machine with OS/2 Bootmanager. During our testing, WIN NT refused to start from the other partition after the migration.

This may have disappeared with the final release of OS/2 Warp Server for e-business.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Perform a Test Installation

- We strongly recommend the installation of OS/2 Warp Server for e-business on a test machine prior to migrating a productive system. Try both, a pristine installation and a migration of a cloned machine for the following purposes:
 - To become familiar with the installation process
 - To discover hardware-related problems
 - To discover software related-problems concerning the migration of the operating system, OS/2 LAN Server, MPTS and TCP/IP.
 - To find out if additional programs are migrated in an acceptable manner for example, HP JetAdmin Port Driver, Lexmark Markvision Marknet Port Driver, Bonus Pack Utilities, TME 10
 - Netfinity Server 4.0 or SystemView 1.0.1
 - To discover software related problems with the JFS file system for example does your backup software handle JFS formatted drives properly?
 - To discover problems of the kind mentioned in the previous chapter "Coexistence with Windows NT"
 - To get the response files which will be created automatically by the panel-driven OS/2 installation program.

Figure 6-22. Perform a Test Installation (ws971642)

Notes:

Possible hardware-related migration problems could be:

- Your server has a disk array. For some reason the disk array controller's device driver is downgraded during the migration process and the RAID will not be accessible after the next reboot
- The migration routine examines the graphics chipset and installs a driver which, for some reason, is not appropriate. After the next reboot the screen will remain black.
- A hardware device that worked under previous OS/2 LAN Server versions fails to work with OS/2 Warp Server for e-business. There is no chance to get it running because there is no appropriate driver available, probably for month.

Possible software-related migration problems could be:

- LVM screws up the partition table and all data residing on the disk is lost.
- LVM reassigns drive letters to existing partitions which do not match with those prior to the migration.

- HPFS386-formatted volumes are not migrated properly, so access to the hard disk will be denied due to missing access control information.
- Values in some .INI files are modified during the migration. For example, the CACHESIZE= parameter in the HPFS386.INI is reset to a standard value and the server might refuse to start due to lack of memory.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Evaluate Disk Utilities and Customer Written Tools

- WPS Issues
- File System Issues
 - As mentioned in the previous chapters OS/2 Warp Server for e-business introduces two new file system features:
 - Journaled File System (JFS)
 - Logical Volume Manager (LVM.EXE).

Figure 6-23. Evaluate Disk Utilities and Customer Written Tools (ws971644)

Notes:

It's very important to know that LVM substitutes the well known FDISK which cannot handle the volumes created by LVM during the migration to OS/2 Warp Server for e-business. In order to prevent FDISK from doing any harm to the logical volume structure, it is not part of the product any more. For this reason consider to replace all occurrences of FDISK.COM in your source code by LVM.EXE.

Note: If you use third-party products to manage your servers' partitions like for example Powerquest's Partition Magic, you have to consider that they might not support LVM and JFS.

Also make sure that your backup software can handle JFS formatted drives.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Configuration

- Have access to hardware configuration disks
- Have copies of important configuration files available
 - If you plan to migrate an existing machine, it may prove to be useful to have copies of the important configuration files on a diskette, because you will have to lookup some machine or user-specific data for example, MAC address, TCP/IP address and hostname, but you wouldn't be able to check it without interrupting the migration process
 - You will have to reset configuration data to its prior value, since it was modified by the installation program during the migration process . We found out that the CACHESIZE= in the HPFS386.INI file was reset to a standard value, if not configured manually. This prevented the server service from starting after the migration.

Figure 6-24. Configuration (ws971646)

Notes:

As part of the process of a maintenance cycle, you might have decided to upgrade the server's hardware for example put in additional memory, hard disks or backup devices before migrating to OS/2 Warp Server for e-business

Some servers for example Microchannel or EISA machines, require configuration diskettes in order to recognize the new built-in parts properly.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Configuration Files

File	In Directory
CONFIG.SYS	Root of Bootdrive
STARTUP.CMD	Root of Bootdrive
HPFS386.INI	\IBM386FS
PROTOCOL.INI	\IBMCOM
RFCNAMES.LST	\IBMCOM
RFCBCST.LST	\IBMCOM
IBMLAN.INI	\IBMLAN
RPL\IRPL.MAP	\IBMLAN
MPTSTART.CMD	\MPTN\BIN
SETUP.CMD	\MPTN\BIN
RESOLV2	\MPTNETC
HOSTS	\MPTNETC
NAMED.BT	\MPTNETC\NAMEDB
NAMED.CA	\MPTNETC\NAMEDB
NAMED.REV	\MPTNETC\NAMEDB
SYSLOG.CNF	\MPTNETC\NAMEDB
TCPSTART.CMD	\TCPIP\BIN

Figure 6-25. Configuration Files (ws971648)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Back up Your System

If for any reason you are unable to do so, you should at least have a backup of the following components (if they apply to your system):

- 1. Company's Data**
- 2. User Home Directories**
- 3. Applications**
- 4. Operating System**
- 5. User Logon Profiles**
- 6. Server Configuration Data**

Figure 6-26. Back up Your System (ws971650)

Notes:

We assume that you are already using a proven reliable backup solution for items 1-6. For further information on backup strategies the redbook *Using ADSM to Back Up OS/2 LAN Server and Warp Server SG24-4682* might be a useful help.

1. DASD Limits
2. User/Group Definitions and Access Rights
3. Domain Setup Information

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

The SRVBU Utility

- SRVBU is a procedure written in REXX. Running on your server, SRVBU scans a predefined set of logical drives and performs the following actions on each of the scanned drives:
 - Back up HPFS386 Access Control Information to a file DISKX.ACL, if X is the drive letter of a HPFS386 formatted partition
 1. Back up the NET.ACC to the file NETACC.BKP
 2. Back up DASD limits to a file named DISKX.DLM, if X is the drive letter of a DASD limit enabled partition
 3. Copy crucial server configuration files as specified in the SRVBU.INI file
 4. Write a disk statistics file as specified in the SRVBU.INI file
 5. Write a processing log as specified in the SRVBU.INI file
 6. Write an error log as specified in the SRVBU.INI file.

Figure 6-27. The SRVBU Utility (ws971652)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

LAN Server Management Tools (LSMT)

Procedure	Purpose	output file
getusers /srv:<srvname> /m	extract user information	USERS.CSV
getgrps1 /srv:<srvname> /m	extract group names and comments	GROUPS1.CSV
getgrps2 /srv:<srvname> /m	extract groups and memberships	GROUPS2.CSV
getalias /srv:<srvname> /m	extract alias definitions	ALIAS.CSV
getacl /srv:<srvname> /m	get access profiles	ACL.CSV
getassgn /srv:<srvname> /m	get user logon assignments	ASSGN.CSV
getappl /srv:<srvname> /m	get defined public applications	APPL.CSV
getsel /srv:<srvname> /m	get application assignments	SELECTOR.CSV
getpwd /srv:<srvname> /m	get passwords (encrypted)	USERS.PWD

Figure 6-28. LAN Server Management Tools (LSMT) (ws971654)

Notes:

LSMT is a collection of REXX procedures which can either be called from the command line or from a PM GUI.

LSMT acts as a two way tool. You can export LAN server configuration information to ASCII files using the GETXXXX commands. These files can easily be modified or backed up re-import these ASCII files to apply the modifications you have done using the SETXXXX commands, which form an exact counterpart to the GETXXXX commands following the same syntax.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Prepare for Disaster Recovery

1. Make copies of the OS/2 installation diskettes and modify them manually
2. When using HPFS386, use the MAKEDISK Utility located in \IBMLAN\NETPROG
3. If your backup software offers functionality to create Disaster Recovery Diskettes, then do it this way.
 - Verify that the Disaster Recovery Diskettes at least contain the following additional drivers, and if not, add them manually:
 - HPFS386 driver, if your server has HPFS386 installed
 - SCSI driver, if your backup device is a SCSI device
 - RAID driver, if your server has a raid array
 - backup device dependent driver.

Figure 6-29. Prepare for Disaster Recovery (ws971656)

Notes:

1. Make copies of the OS/2 installation diskettes and modify them manually.
2. When using HPFS386, use the MAKEDISK Utility located in \IBMLAN\NETPROG (if running OS/2 Warp Server, double-click on the Icon "Create 386 HPFS OS/2 Startup Diskette" located in the IBM LAN services folder as shown in Figure 13 below). You will need to have access to the WARP Server installation files. Also verify that the CONFIG.SYS contains the BASEDEV = XDFLOPPY.FLT entry.
3. If your backup software offers functionality to create Disaster Recovery Diskettes then do it this way.

Verify that the Disaster Recovery Diskettes at least contain the following additional drivers, and if not, add them manually:

- HPFS386 driver, if your server has HPFS386 installed
- SCSI driver, if your backup device is a SCSI device
- RAID driver, if your server has a raid array
- Backup device dependent driver

Note: In order to be sure the device drivers work as expected, always copy those from your currently running system onto the Disaster Recovery Diskettes instead of getting the latest version from the Internet.

Also keep in mind, if needed, to copy additional device drivers to the Disaster Recovery Disks whenever the server's hardware has been modified.

Note: To be sure disaster recovery works, you should have tested the Disaster Recovery Diskettes for the following issues:

- Are you able to boot from the Diskettes and access your server's hard disk?
- Is the backup device recognized during startup?
- Are you able to read and restore from the backup media?

Always keep those diskettes in a safe and well-known place.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Remove Remote Access Services

- The OS/2 Warp Server for e-business software cannot be installed over a previously installed Remote Access Connection Server or Remote Access Client. You must remove it before installing any OS/2 Warp Server for e-business software.
 - If not already part of your regular backup, save your \CONFIG.SYS and your \IBMCOM\PROTOCOL.INI to a safe place.
 - Call LDREMOVE.EXE which is located in the Remote Access installation directory (\WAL by default).

Figure 6-30. Remove Remote Access Services (ws971658)

Notes:

Name	Description
WCLLOCAL.INI	Local configuration information for the LAN Distance workstation
WCBUSRF.ISF	Security information from the user account database
WCLDIAL.CXD	Telephone numbers and connection information for phone book entries
WCLNET.INI	Modem configuration information

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Remove Local Security

If you are using Local Security on at least one of the HPFS386 formatted partitions, you must deactivate it before migrating to OS/2 Warp Server for e-business by doing the following:

1. In the CONFIG.SYS file change the line
PROTSHELL=C:\IBMLAN\NETPROG\SECURESH.EXE
C:\OS2\PMSHELL.EXE
to
C:\IBMLAN\NETPROG\SECURESH.EXE
to get rid of the local logon procedure
2. Run the PREPACL utility to remove the access control information supplied by Local Security. Chapter 4.15 Remove HPFS386 Access Controls describes how to use PREPACL.

Figure 6-31. Remove Local Security (ws971660)

Notes:

If you are running OS/2 LAN Server Advanced, you may have installed the Local Security Feature for HPFS386 (referred to as Local Security).

While permissions set for a resource usually apply only to remote users accessing the resource from different workstations, Local Security extends access restrictions to local users working at the server. It protects all files on the servers' HPFS386 partitions from unauthorized local access. Files stored on FAT partitions are not protected by Local Security.

However, they are still protected from remote access by unauthorized users. Administrators have permissions for all files on the server and are not subject to access control permissions.

Local Security also checks file permissions when you run a program that accesses files. Programs that need access to system files (for example, BACKACC) or even to the complete hard disk (backup programs) would autologon with administrator rights or gain access by the PRIV utility.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Back Up Directory Limits

- Directory limits provide disk space management at the server's directory level. If you applied directory limits to your server's file system, save them and disable them afterwards. If it is not already a part of your regular backup (for example, with the SRVBU utility), keep the saved directory limit information in a safe place for restore purposes.
- **BACKDASD Example:**
 - `BACKDASD /F:DISK_F.DLM /P:F:\HOMEDIR`

Figure 6-32. Back Up Directory Limits (ws971662)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Back Up Access Control Information

- ACKACC performs the following tasks:
 1. Copies the NET.ACC file
 2. Copies the NET.AUD file
 3. Backs up Access Control Profiles for each drive to be converted to or from HPFS386
 4. Deletes access control profiles for nonexistent directories
- BACKACC Syntax
 - BACKACC d:pathname /F:target /S

Figure 6-33. Back Up Access Control Information (ws971664)

Notes:

ACKACC performs the following tasks:

1. Copies the NET.ACC file
2. Copies the NET.AUD file
3. Backs up Access Control Profiles for each drive to be converted to or from HPFS386.
4. Deletes access control profiles for nonexistent directories.

BACKACC Syntax

BACKACC d:pathname /F:target /S

Where:

d: specifies an optional drive letter

pathname specifies the path to the directory or file of which permissions are to be backed up

- /F:target** specifies a target file to store access control profile information to, which can be used as input for the RESTACC utility. If target is not an absolute path name, the default directory for target is the current working directory.
- /S** recursively backs up all the descendant subdirectories and is valid only if pathname points to a valid directory.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Save The DCDB

- The Domain Controller Database (DCDB) is located on the domain controller containing information about definitions of network resources that users might access. Included in the DCDB are user's automatic logon assignments, public applications definitions and the details of resources shared through aliases.
 - Manual Backup
 - Replication to a Backup Domain Controller (BDC)
 - Backup With LSMT

Figure 6-34. Save the DCDB (ws971666)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Remove HPFS386 Access Controls

- The PREPACL utility backs up, removes, and, after the migration, restores all HPFS386 Access Control Profiles applied to any subdirectories or files specified as a parameter. Be careful, since PREPACL removes the ACLs and copies backup information to an ASCII file. Careless repetitive usage of this utility will overwrite previous file contents, and the ACLs will be completely lost.
- **PREPACL Syntax**
 - PREPACL /P /B:filename /D:dirname

Figure 6-35. Remove HPFS Access Controls (ws971668)

Notes:

PREPACL Syntax

PREPACL /P /B:filename /D:dirname

Where:

/P Removes 386 HPFS access control profiles in preparation for OS/2 installation.

/B:filename When removing access control profiles, specifies a file name in which to save the access control profiles. If this parameter is not used, /N must be specified. /F:target specifies a target file to store access control profile information to, which can be used as input for the RESTACC utility. If target is not an absolute path name, the default directory for target is the current working directory.

/D:dirname Specifies a single subdirectory from which to remove access control profiles.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Boot-Time Considerations

- The following actions are not necessary, but can avoid problems and shorten installation time:
 - Remark all device drivers in the CONFIG.SYS which are not necessarily needed for the migration
 - Remark all programs in the STARTUP.CMD which are not necessarily needed for the migration
 - Remove the icons of all the programs from the startup folder which are not necessarily needed for the migration.
- Don't forget to undo these changes after the migration.

Figure 6-36. Boot-Time Considerations (ws971670)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Deactivate Fault Tolerance

If you are running OS/2 LAN Server Fault Tolerance, unmirror and deactivate all those currently mirrored drives on which services will be installed.

Partition	Driveletter	Size	Partition Type	Filesystem
(BOOT MANAGER)	N/A	(depends on HD)	primary	N/A
SeS	C:	32 MB	primary	FAT
System	D:	512 MB	logical	HPFS or HPFS386
Dump	E:	RAM size + 1 MB	logical	FAT
Data	F:	(optional)	logical	JFS
CD-Rom	G:	N/A	N/A	CDFS

Figure 6-37. Deactivate Fault Tolerance (ws971672)

Notes:

You can deactivate Fault Tolerance by executing the following steps:

1. Start the FTSETUP Program
2. Under OPTIONS, select Deactivate Fault Tolerance...

A dialog will appear as shown in Figure 23 below.

Choosing DEACTIVATE will perform the following:

the RUN=FTMONIT.EXE and DEVICE=DISKFT.SYS lines from the CONFIG.SYS file will be removed

all drives that are mirrored or pending a mirror are unmirrored and their secondary partitions will be deleted

all detached partitions will be recovered.

3. The system will need to be restarted.

After the migration has completed, disk mirroring can be re-enabled again.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Preparation

- Document Multimedia Device Configuration
- Remove IBM Peer
- Document Printer and Queue Definitions
 - If you have defined printer queues on your server, manually recording all the printer and queue definitions is a tedious task. We used the tool BACKPRN, which backs up printer and job properties to a file. This file can be used later for restoration by RESTPRN or RINSTPRN (the remote printer installation program

Figure 6-38. Preparation (ws971674)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

6.4 Option #2: Migrating Using CID

Instructor Topic Introduction

What students will do —Students will review steps needed to migrate using a CID install over a current system.

How students will do it —Lecture and Instructor-led discussion. Refer to SG24-5135.

What students will learn —Students will learn the additional steps needed to migrate to OS/2 Warp Server for e-business using a CID installation method.

- Preparing a CID code server
- Installation Phase 1
- Installation Phase 2
- Installing server applications
- Cleanup
- CID response file statements

How this will help students in their job —Larger networks may use CID to install multiple servers in a semi-automated fashion.

Preparing the Migration

- General Structure of the Server's Disks
- Backup Domain Controller
- Migrating the File and Print Servers
- Migrating the Primary Domain Controller

Figure 6-39. Preparing the Migration (ws971676)

Notes:

Switching Servers Roles

While it is handy to have some CMD files that will do the job directly, the role switching between a primary and a backup domain controller is straightforward : Your domain will still be operational if you've only a backup domain controller while you cannot have two Primary Domain Controller simultaneously so you have to first change the role of the Primary Domain Controller to Backup, and when this is done, you have to change the role of the previously Backup Domain Controller to Primary.

To be able to change the roles, you must first stop the NETLOGON and DCDBREPL services on the machine, then change the role and then restart the two services. The sequence is then:

```
NET STOP NETLOGON
NET STOP DCDBREPL
NET ACCOUNTS /ROLE:BACKUP
NET START DCDBREPL
NET START NETLOGON
```

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Performing the Migration

- Preparing the system
 - Select the install volume
 - Format the volume (if necessary. In our case we will obviously not format the volume)
 - Copy the system files
 - Configuring hardware and software options
 - Installing and configuring the server components
- Copying the needed files
- Installing the LAN server components

Figure 6-40. Performing the Migration (ws971678)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Under the Covers

- The installation process is a three phase one (each of these phases is separated from the other by a reboot).
- Phase 1
 - This phase uses the text-based interface and during it, the files needed to restart the operating system from the hard disk are copied. In details, the CDBOOT.EXE program is started and under its control CONINST.EXE (CD-ROM and Network adapter card detection) and SYSINST2.EXE (Installation type query, FDISK Call, Actual files copy) are run.
- Phase 2
 - During this phase, the rest of the operating system and the selected other components are installed including MPTS (Multi Protocol Transfer Services)
- Phase 3
 - The last phase is used to install TCP/IP and the LAN Server components. The last objects are created and placed in their respective folders. It is followed by the last reboot that will bring up the default desktop.

Figure 6-41. Under the Covers (ws971680)

Notes:

The fruits of the Installation

As we said before, even if the users choice are collected by a succession of panels, they are all stored in Response files. We will here list all of them and give their application. CID installers will then be able to quickly locate them and make them adapt to their needs for future unattended installations.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Finishing the Migration

- When all the Base OS/2 system and LAN Server components have been installed, there is still some work to do:
 - If you migrated a Backup Domain Controller, verify that all its functions are correctly restored (Use for example here also the LSC.cmd and LSDCDB.Cmd programs). If you migrate a BDC, be sure you consider the need to (switch roles with the PDC).
 - If you migrated a File and Print Servers, check also that the aliases and the shares have effectively be restored.
 - If you migrated your Primary Domain Controller, then check that everything is now in place and that your general user can access the network and all the files he used.

Figure 6-42. Finishing the Migration (ws971682)

Notes:

Important Note

During the migration, a lot of parameter settings are just reset to their default values (in fact while the main functional parts like path information are conserved from your previous settings, most, if not all of the tuning parameters, are reset to their default values). So an important part of the post-migration task will certainly be to reset these parameters to the values that were most adapted to your organization.

A way to do so is to rely on the Cube.cmd program that can perform a lot of modifications in a config.sys like file. As this utility is frequently used in our CID scenario, we have described its usage in the following chapter and it comes on the CD with its associated documentation. In the CID chapter, an example of our tuning modifications is also given and it can be used to modify your own config.sys quite directly from the CD.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

6.5 Option #3: Migrating to New or Alternative System Hardware

Instructor Topic Introduction

What students will do — Students will review the issues of migrating a current server to a OS/2 Warp Server for e-business based on new a new hardware installation replacing the current server.

How students will do it — Lecture and Instructor-led discussion.

What students will learn — Students will learn the choices involved in migrating an existing system to OS/2 Warp Server for e-business while at the same time replacing the existing hardware.

This is very similar to Option 1, except that generally you will be backing up configuration data from one server and restoring it to another.

How this will help students in their job — Being able to select the safest and easiest approach to migrating an existing server function onto new hardware while simultaneously upgrading to OS/2 Warp Server for e-business.

Migration Methodology

The basic steps in this process are as follows:

1. Prepare the new hardware
2. Test the new hardware to ensure that the system is functioning properly
3. Backup existing system configuration
4. Backup system data
5. Install OS/2 Warp Server for e-business on new hardware
6. Restore existing configuration to new hardware
7. Restore existing data to new hardware
8. Perform post-installation procedures
9. Perform integration procedures

Figure 6-43. Migration Methodology (ws971684)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Preparing New Hardware

Depending on the model/type, size and complexity of the new hardware, the amount of effort required to prepare the hardware in advance will vary. The preparation may include locating the correct system support diskettes, adapter drivers, peripheral drivers and actually configuring the new hardware itself. Specific preparation details will not be discussed here.

Please verify that your hardware is supported before you proceed.

Figure 6-44. Preparing New Hardware (ws971686)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Supported Hardware

You will be able to find most current information on supported hardware on the Internet. Please see the following address:

<http://www.software.ibm.com/os/warp/support>

Additional device support is available at the following address:

<http://service.software.ibm.com/os2ddpak/index.htm>

Figure 6-45. Supported Hardware (ws971688)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Testing

Before any system is integrated into a business environment, it should be fully tested. As a minimum, we recommend the following test procedure:

1. Install OS/2 Warp Server for e-business on new hardware
2. Perform system testing
3. Perform functional testing
4. Develop migration plan
5. Test migration plan
6. Test recovery procedures

When preparing new hardware, you have the existing system available until the new hardware is brought online. You will only need to do the recovery procedures if something goes wrong after the new system is online.

Figure 6-46. Testing (ws971690)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Suggested Hardware

Since some migration scenarios rely on moving to alternative hardware, part of the migration will involve deciding what hardware to implement. This is a decision which will be different depending on the environment for which the system is needed.

NOTE: We recommend that you undertake detailed performance and capacity planning when deciding what hardware to implement.

Figure 6-47. Suggested Hardware (ws971692)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Backup and Contingency

Do not place your business at risk, please make sure that you have a reliable backup and recovery strategy in place.

The recommended steps in this process are:

1. System backup
2. Data backup
3. Configuration backup
4. Proven recovery procedures
5. Migration strategy

Figure 6-48. Backup and Contingency (ws971694)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Migration Strategy

Items to consider:

1. Install the new system in a test environment and then swap out the existing system ?
2. Are both machines (the existing and the new machine) both online during the migration? Would you rename the new machine when migration is complete?
3. Any others?

Figure 6-49. Migration Strategy (ws971696)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Installation

Items to consider:

1. The migration can be either "simple" or "complex". Please refer to Chapter 5 for "Simple Migration" and Chapter 6 for "Complex Migration".
2. Installation to a new machine...(may need to backup and restore data/configuration from an existing server).

Figure 6-50. Installation (ws971698)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Preparing the CID Installation

- Establish a code server
 - LAN CID Utility (LCU) - Comes with OS/2 Warp Server
 - SRVIFS - Comes with MPTS
 - NetViewDM/2
- Copy images to the code server

```
xcopy d:\OS2IMAGE x:\CID\IMG\OS2\ /s /e
xcopy d:\CID\DLL x:\CID\DLL\ /s /e
xcopy d:\CID\EXE x:\CID\EXE\ /s /e
xcopy d:\CID\LOCINSTU x:\CID\LOCINSTU\ /s /e
xcopy d:\CID\NIFS x:\CID\NIFS\ /s /e
xcopy d:\CID\SERVER x:\CID\IMG\ /s /e
```

Figure 6-51. Preparing the CID Installation (ws9716a2)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

The Installation Steps

- Preparation Steps
 - Do all the preparation steps to ensure a fail-safe migration process
 - Exception: don't remove the ACLs on HPFS386
- Create a maintenance system
 - Run SEMAINT
 - Run THIN386 - If you are using HPFS386
- Update the Base Operating System

Figure 6-52. The Installation Steps (ws9716a4)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Principles of CID

- CID Enablement
- CID for Migration
- Response Files
- Redirected Drives
- Code Servers

Figure 6-53. Principles of CID (ws9716a6)

Notes:

CID Enablement

Software that is capable of being distributed and configured through the LAN is called CID-enabled. CID-enabled products can be configured and installed remotely on LAN-attached clients with limited or no interaction required locally at each client.

CID for Migration

In the context of migration, then, the purpose of CID is to enable remote, unattended (or at least lightly attended) software installation. This is achieved by providing answers to installation questions via response files and the actual procedures required for the installation itself.

Response Files

Response files provide predefined responses to any prompts normally aimed at the user during the installation or configuration process. This allows user interaction with the installation process to be bypassed.

Response files are product-specific ASCII files that contain sequences of keyword-value pairs. They are interpreted during the installation and configuration process of a product by the installation (and configuration) program.

Redirected Drives

CID also supports the capability to install from a drive other than A:. This drive could be an alternate drive on the target system, a redirected drive on a LAN or other network, or some other device that appears to the operating system as a logical drive, such as a CD-ROM device.

The workstation that uses a remote (redirected) drive is known as the client or redirector, and the workstation that provides a remote (redirected) drive is known as the server, software distribution server, or code server.

The client workstations will access the drive on the server where the product images reside and will perform the installation. Depending on the method of communications used, there are different ways to connect to a code server. In most cases, the redirected drive will be accessed through a Local Area Network (LAN).

Code Servers

Before starting a CID installation, a code server is required. A code server is the system that contains the source files (or installation diskette images) to be used during the installation or maintenance process. It also contains the response files for each product and an area for log files produced by the installation routines.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

LCU Server

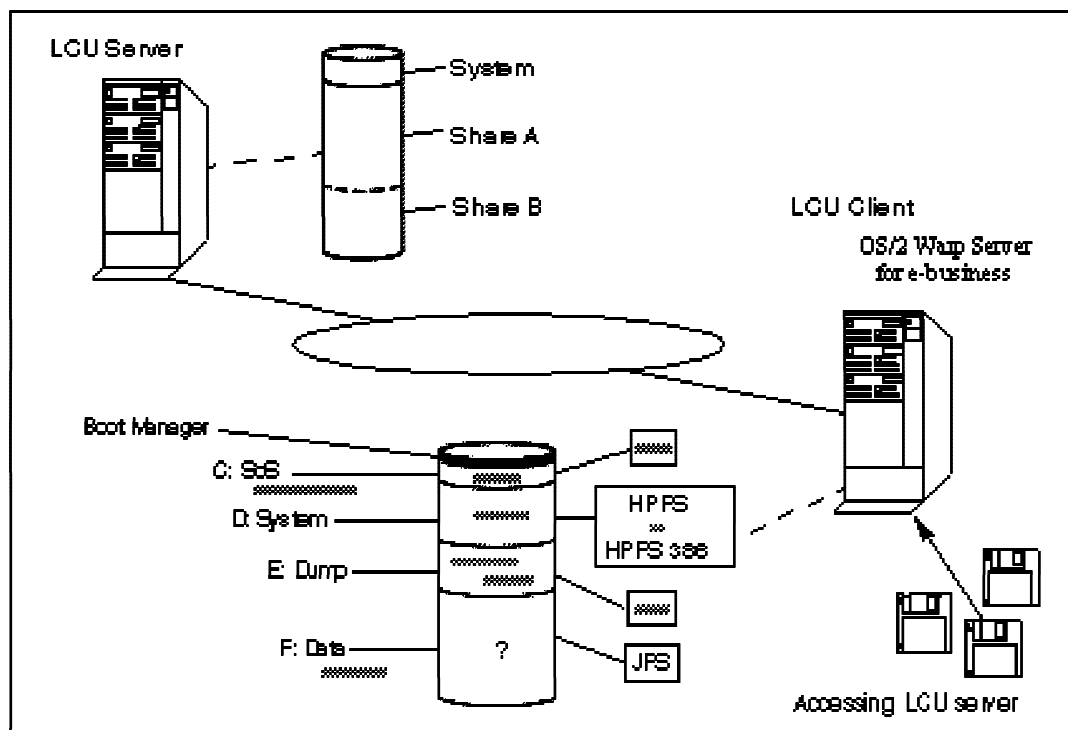


Figure 6-54. LCU Server (ws9716a8)

Notes:

We created a scenario based upon the LAN CID Utility (LCU) and installed all the components and products that come with OS/2 Warp Server for e-business on one single server. This scenario is unrealistic, because in the real world you should, for obvious reasons, install the different services on different dedicated machines (for example file server, print server, Web server, remote access server, ...). But this example should give the reader a good idea how response files should look, what steps should be executed, and what the behavior should be when doing an unattended installation.

For a good understanding, if you install a system from scratch, your installation process is *lightly attended* instead of *unattended*, because there is an operator's intervention needed to put the kicker diskettes into the target system and start the software distribution. From then on, the process is *unattended*.

Only considerations and exceptions are described in this chapter. For complete response files and a LCU command file, refer to "See Unattended Installation"

LCU server

The requirements for the LCU server are :

- OS/2 3.0 or higher
- MPTS, with enough resources reserved for the LCU server service
Token-Ring adapter, with NETBEUI on logical adapter 0
- 1 GB or more free hard disk space, to create the LCU directory structure

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Setting Up a LCU Code Server

- As already mentioned, you need an OS/2 server with a large amount of free disk space to hold the LCU directory structure (cfr. See LCU server : directory structure).
 - Create all the subdirectories (\ShareA, \ShareB, \ShareA\IMG, ...)
 - Then you should copy the images of the products into \ShareA\IMG.
 - Afterwards, you should configure the LCU server, and start running it.
 - Copy the product images to the IMG directory
 - First of all, we have to copy the images of all products from the different CD-ROM's to the \ShareA\IMG directory of the code server.

Figure 6-55. Setting Up a LCU Code Server (ws9716b2)

Notes:

Take the CDs and copy :

The OS/2 images from \os2image on the OS/2 Warp Server for e-business CD to
\ShareA\IMG\OS2\XR09999

The other products (MPTS, LAN Server, ...) from \cid\server**\ShareA\IMG**

NetFinity images (manager and services) from the accompanied NetFinity CD to
\ShareA\IMG\NetFin\5_20_2\OS2

Lotus Go Webserver images from the accompanied Lotus Go CD to
\ShareA\IMG\LotusGO\4_62_05

WebSphere Application Server images from the accompanied Lotus Go CD to
\ShareA\IMG\WebSpher\1_10

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

LAN CID Utility

- A simple and powerful tool called LAN CID Utility (LCU) ships as part of Multiple Protocol Transport Services (MPTS) - included in OS/2 Warp Server for e-business.
- As far as networking and software distribution is concerned, MPTS consists of three primary components:
 - Adapter and Protocol Services
 - LAN CID Utility (LCU) and Code Server SetupUtility(CASSETUP)
 - SrvIFS (Server Installable File System)

Figure 6-56. LAN CID Utility (ws9716b4)

Notes:

The Adapter and Protocol Services component provides the LAN transport (network communication) subsystem for OS/2 environments. The LCU utility is designed to allow an administrator to chain together a series of CID installations. SrvIFS is actually a small NetBIOS-based file server and requester (THINIFS). This utility provides file redirection in a CID environment, enabling clients to access the code server and consequently to install from diskette images.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Software Distribution Managers

In this Unit, we consider the following types of code server:

LAN CID Utility (LCU)

NetView Distribution Manager/2 (NVDM/2)

Tivoli TME 10 SD 3.1.3 (SD4OS2)

Figure 6-57. Software Distribution Managers (ws9716b6)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Assumptions

- **Pristine Installation**
 - In spite of the fact that we are considering a migration scenario, the installation of new products which come with OS/2 Warp Server for e-business has been discussed here. However, we emphasize that it is not a specific part of this migration scenario.
 - New product installation scenarios are described fully in a forthcoming red book "Inside OS/2 Warp Server for e-business" (SG24-5136-00), due in the first half of 1999.

- **CID Knowledge**
 - Throughout this unit, we assume a basic knowledge of CID techniques. We believe that many of the existing enterprise customers already use either CID, NVDM/2 or SWD products.

Figure 6-58. Assumptions (ws9716b8)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Preparing the Code Server

- **Installing and Tailoring the Code Server**
- **The code server set up consists of the following broad steps:**
 - **Create the appropriate CID directory structure**
 - **Load OS/2 CID utilities to the code server**
 - **Load product images to server**
 - **Create response files for each installable product**
 - **Set up the software distribution manager, if applicable**

Figure 6-59. Preparing the Code Server (ws9716c2)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Preparing the Code Server

- Preparing the Code Server
- Creating Response Files
- Introducing Feature Installer
 - 386HPFS
 - Java Development Kit (including Java Runtime Environment - JRE)
 - OS/2 Printer Utilities (HP JetAdmin and Lexmark MarkNet)
 - Personally Safe N' Sound
 - Lightweight Directory Access Protocol (LDAP) Client Toolkit
 - TCP/IP Applications
- Introducing Software Installer
 - Some products are still installed by the Software Installer program.
 - Lotus Domino Go Webserver 4.6.2.5
 - Netscape Communicator 4.04
 - Tivoli Management Agent: TME Endpoint 4.0

Figure 6-60. Preparing the Code Server (ws9716c4)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Overview of Installation Steps

Note on Installation Order

We have tried to highlight inter-dependencies between individual product installation steps, but it is impossible to guarantee that in your environment you will not encounter additional issues. Therefore we repeat our advice that you fully test your CID environment prior to actually migrating a production system!

Figure 6-61. Overview of Installation Steps (ws9716c6)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Preparation Phase

Create Maintenance System (SEMAINT)

Logical Volume Manager (LVM) Issues

Seed LAN Transport (THINLAPS)

File System Redirection (THINIFS)

Access to 386 HPFS Volumes (THIN386)

LCU Installation (CASINSTL)

Figure 6-62. Preparation Phase (ws9716c8)

Notes:

Create Maintenance System (SEMAINT)

SEMAINT creates a minimal, maintenance system for the purpose of installation when system files would otherwise be locked. During migration, a maintenance system is necessary because a new version of the operating system is being installed over the top of an existing installation, and system files are locked.

During a pristine installation this step is not required

A maintenance system is a minimal version of the operating system that is stored in a different directory (for example C:\MAINT instead of C:\OS2). It may be stored on a different partition, but this is not essential. The existence of a maintenance system eliminates the need to boot from diskettes.

Logical Volume Manager (LVM) Issues

OS/2 Warp Server for e-business includes a feature called Logical Volume Manager, which replaces older versions of OS/2's FDISK utility. LVM can handle the new logical

volumes available with OS/2 Warp Server for e-business. This introduces some additional considerations into the installation scenario.

Seed LAN Transport (THINLAPS)

This program creates a seed LAN transport system.

File System Redirection (THINIFS)

The SrvIFS (Server Installable File System) provides an easy means of redirection. THINIFS installs the necessary SrvIFS redirection files on the hard disk.

Access to 386 HPFS Volumes (THIN386)

This step used to be necessary for access to 386 HPFS volumes, but is no longer required. We explain in 6.11.4 386 HPFS.

LCU Installation (CASINSTL)

CASINSTL installs the LAN CID Utility client code.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Base OS/2 Installation - Phase One

- Install Base OS/2 Operating System (SEINST)
- Multiprotocol Transport Services (MPTS)

Figure 6-63. Base OS/2 Installation —Phase One (ws9716d2)

Notes:

Phase one of the installation installs the OS/2 2.11 and a full LAN transport system.

Install Base OS/2 Operating System (SEINST)

The OS/2 2.11 is installed in two parts. In Phase One, SEINST installs the OS/2 2.11, after which OS/2 boots to a Presentation Manager (PM) interface.

In Phase two, additional applications are installed through the use of Feature Installer.

MultiProtocol Transport Services (MPTS)

MPTS installs LAN transport code (Adapter and Protocol Services) onto the system.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Installation - Phase Two

- Display Driver Install (DSPINSTL)
- OS/2 Feature Installer (CLIFI)

Figure 6-64. Installation —Phase Two (ws9716d4)

Notes:

Phase two occurs in Presentation Manager mode. During this phase, any or all of OS/2's installable features which cannot be installed in maintenance mode, can be installed. The features are installed using OS/2 Feature Installer.

Display Driver Install (DSPINSTL)

If SVGA display resolution is required - which is of course an unnecessary, optional feature on a server - it can be installed during this phase of installation. At the time of writing however, Netscape Navigator requires 256 color support and thus installation of an SVGA display is essential.

OS/2 Feature Installer (CLIFI)

New to OS/2 Warp V4, and now included in OS/2 Warp Server for e-business, the Feature Installer program installs some additional OS/2 features. Feature Installer requires OS/2 Presentation Manager (PM). Feature Installer is also used to install other applications

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Principle Applications

- File and Print Sharing Services (LANINSTR)
- 386 HPFS (CLIFI)
- First Failure Support Technology/2 (FFSTINST)
- TCP/IP Application Services (CLIFI)
- Netscape Communicator (INSTALL)

Figure 6-65. Principle Applications (ws9716d6)

Notes:

File and Print Sharing Services (LANINSTR)

This installs File and Print Sharing Services, also known as generically as LAN or Warp Server.

386 HPFS (CLIFI)

386 HPFS provides improved access to large disk volumes and it optimizes performance in a server environment where many files are open simultaneously from clients.

If 386 HPFS is already installed on the system being migrated, it will be updated. If it is not already on the system then it can be installed. The install uses Feature Installer. An additional licence is required.

First Failure Support Technology/2™ (FFSTINST)™

FFST/2 which used to be installed as part of LAN Server or DB/2 is now installed with the operating system during a local CD ROM-based install.

In a CID environment it must be installed via a separate install procedure.

TCP/IP Application Services (CLIFI)

Any subset or all of the TCP/IP Application Services can be installed. Individual requirements will vary between environments. It is installed using Feature Installer.

Netscape Communicator (INSTALL)

In addition to navigating the World Wide Web, Netscape Communicator can be used as a Graphical User Interface (GUI) for the installation, configuration and uninstall of various products, for example TCP/IP installation. It is installed using Software Installer.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Other OS/2 Warp Server Applications

- **Personally Safe N' Sound (CLIFI)**
- **Remote Access Services (or PPP Server) (INSTALL)**
- **Print Services Facility/2 (PSF2)**
- **OS/2 Warp Server for e-business Books (INSTBOOK)**

Figure 6-66. Other OS/2 Warp Server Applications (ws9716d8)

Notes:

Also installable in PM mode during phase two, this section considers applications which were included in OS/2 Warp Server v4, but not in earlier versions of OS/2 LAN Server. Web have grouped the applications here for reasons of clarity alone.

Personally Safe N' Sound (CLIFI)

Personally Safe N' Sound (PSNS) - or Backup and Recovery Services - was available bundled in the Warp Server v4 package, and could be purchased also as a separate product. It is installed using Feature Installer.

Remote Access Services (or PPP Server) (INSTALL)

LAN Distance Connection Server was available bundled in the Warp Server V4 package, and could be purchased also as a separate product. It has now been replaced by Remote Access Services (or PPP Server as it is known), which allows PPP protocol clients to use the LAN. LAN Distance must first be removed.

Print Services Facility™ /2 (PSF2)

Advanced Print Services - or Print Services Facility - allows you to print file formats that your printer typically does not support.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

New Applications

- Netfinity Services (NETFINST)
- Lightweight Directory Access Protocol (LDAP) (CLIFI)
- Tivoli Management Agent (INSTALL)
- Lotus Domino Go Webserver (INSTALL)
- Websphere Application Server (WEBSPHER)

Figure 6-67. New Applications (ws9716e2)

Notes:

Netfinity® Services (NETFINST)

Netfinity Services supersedes OS/2 SystemView and TME10 Netfinity Server V4. SystemView was included with OS/2 Warp Server V4. An upgrade to TME10 Netfinity Server was available after initial shipment of OS/2 Warp Server V4.

Netfinity Manager™ and Client Services are highly-responsive hardware management features that supports key systems management tasks. It can be installed in phase two of the installation.

Lightweight Directory Access Protocol (LDAP) (CLIFI)

OS/2 Warp Server for e-business supports Lightweight Directory Access Protocol (LDAP) client toolkit. It is installed using Feature Installer.

Tivoli Management Agent (INSTALL)

TMA is a replacement for the SystemView® agent. It is used for managing PC Servers - and supports OS/2 using TCP/IP. It can be installed in phase two using the Software Installer program.

Lotus Domino Go Webserver (INSTALL)

OS/2 Warp Server for e-business includes a fully functional trial version of Lotus Domino Go Webserver. It can be installed during phase two of the installation using the Software Installer program.

Websphere Application Server (WEBSPHER)

Websphere Application Server is a plug in for Lotus Domino Go Webserver which adds Java support. It too can be installed during phase two of the installation, but requires Lotus Domino Go Webserver to be functional prior to installation.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Final Phase - Clean Up

- Delete SrvIFS (IFSDEL)
- Delete LCU (CASDELET)

Figure 6-68. Final Phase — Cleanup (ws9716e4)

Notes:

Delete SrvIFS (IFSDEL)

IFSDEL removes the files installed by THINIFS.

Delete LCU (CASDELET)

CASDELET removes LCU files from the system. It is executed as the last step.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

CID Installation Parameters

- **Create LCU Boot Diskettes**
 - In a pristine installation, it is necessary to create LCU boot diskettes for the system which will be installed. This is not necessary in a migration scenario.
 - 1. Create Original Boot Diskettes from CD ROM images
 - 2. Add LAN Transport and Adapter Support to the diskettes
 - 3. Add LCU Client Support to the diskettes
 - 4. Create a Startup Script
 - 5. Clean up the CONFIG.SYS on DISK 1
 - 6. Make Disk 2 unbootable using DBOOT

- **When you have prepared your code server you will be ready to boot with client diskettes and start your pristine installation.**

Figure 6-69. CID Installation Parameters (ws9716e6)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Create Maintenance System (SEMAINT)

- SEMAINT creates a maintenance system on your bootable partition, or on another partition which will be booted in order to install OS/2. It copies a minimal version of the operating system to a new directory on a designated drive. When booted from the maintenance system, only text-mode programs can run.
- SEMAINT Syntax
 - SEMAINT /S:<Source_Path> /S2:<Service_Pak> /T:<Target_Path> /B:<Boot_Drive> /L1:<Path><Log_File_Name>

Figure 6-70. Create Maintenance System (SEMAINT) (ws9716e8)

Notes:

Please Note: Following successful execution of SEMAINT (if executed on the boot drive), the previous version of OS/2 will no longer work, since SEMAINT replaced some hidden files on the boot drive (for example, OS2KRNL) with a newer version. If the installation fails at this point, it is probably wise to restore the system from the backup taken before the installation.

Some administrators plan their disk partitioning prior to the initial installation, creating a small partition to be used for maintenance and in recovery situations. We implement this in our environment. Our standard installation uses a small primary C: drive for the maintenance partition, with logical drive D: as our boot partition.

Useful Hint

If you have a bootable partition (or maintenance partition) other than the system boot partition on your server, we recommend that you install the maintenance system onto it. That way, if SEMAINT fails, your original system partition will be unaffected and there should be no need for restoration.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

386 HPFS File System Access (THIN386)

- In the past, if you were using 386 HPFS formatted drives, THIN386 had to be run. THIN386 installs the 386 HPFS file system drivers onto the maintenance system, which ensured that the installation process had unrestricted access to all server drives.
- This step is not needed with OS/2 Warp Server for e-business. We have found that this step is no longer required if access controls are removed from the file system prior to the migration using PREPACL.

Figure 6-71. 386 HPFS File System Access (THIN386) (ws9716f2)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Logical Volume Manager (LVM) Issues

- OS/2's FDISK utility has been replaced by the Logical Volume Manager (LVM). During migration the existing partitions must be converted to LVM Compatibility Volumes.
- At the time of writing, we had to implement a workaround so that the installation completed unattended.
- In a pristine environment, the disk must be partitioned via command line procedures automatically. The old FDISK command line switches no longer apply and new methods must be used.

Figure 6-72. Logical Volume Manager (LVM) Issues (ws9716f4)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Install Base OS/2 Operating System (SEINST)

- Once the machine has been booted from the maintenance system, SEINST can be called to start the first phase of installation of the base OS/2 operating system.
- **SEINST Syntax**
-SEINST /S:<Source_Path> /T:<Target_Path>
/B:<Boot_Drive> /L1:<Log_File> /R:<Response_File>

Figure 6-73. Install Base OS/2 Operating System (SEINST) (ws9716f6)

Notes:

What if Disaster Strikes?

A failure of SEINST is probably one of the worst things that can happen during the installation process. In most cases, a lot of files have already been updated, resulting in a bizarre mix of different versions on your hard disk. If this situation arises, recovery can prove very difficult.

In the case of a failure, make sure that you check the log file. If it tells you that files were changed, you should restore the previous contents of the hard drive from your backup and start the migration process from scratch. If the reason for the failure is obvious (for example, not enough hard disk space available on boot drive) and nothing was changed, you may be able to fix the problem and re-invoke SEINST.

Useful Hint

When SEINST aborts, reporting that RSPINST could not be executed successfully, you might try to call RSPINST directly for testing purposes in order to view the error messages. RSPINST accepts only one parameter the fully qualified path and name of the response file. RSPINST's return codes are listed in A.1 RSPINST Return Codes.

Remember: The maintenance system is running in this situation. Therefore, the collection of tools you can use is somewhat limited.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Multiprotocol Transport Services (MPTS)

- The easiest way to upgrade MPTS is to re-install it using the same values in the response file that were specified during the last installation. Installing - or rather updating - MPTS immediately following the migration of the base OS/2 operating system saves one reboot in the overall installation cycle.
- During our testing, we found no significant changes in the way MPTS is installed compared to previous versions.
- MPTS CID Installation Syntax
-MPTS /E:<env> /S:<source_path> /T:<target_path>
/TU:<config_path> /R:<response_file> /L1:<log_file>

Figure 6-74. Multiprotocol Transport Services (MPTS) (ws9716f8)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

File System Redirection (THINIFS)

- The SrvIFS (Server Installable File System) provides an easy means of redirection. THINIFS installs the necessary SRVIFS redirection files on the hard disk.
- We execute THINIFS twice to obtain two redirected drives for the next part of the installation, having rebooted to Presentation Manager mode.
- THINIFS Syntax
 - THINIFS /S:<Source_Path> /T:<Target_Path>
/SRV:<CodeServer_Name> /REQ:<Client_Name>
/D:<Drive_Letter> /TU:<ConfigSys_Path>
/L1:<LogFile_Name> /NS:<NB_Sessions>
/A:<IFS_Option> /W

Figure 6-75. File System Redirection (1 of 6) (ws9716g2)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

LCU Installation (CASINSTL)

- **CASINSTL** installs the LAN CID utility client code, which is the actual software distribution manager that works with SRVIFS.
- **CASINSTL Syntax**
 - CASINSTL /TU:<Boot_Drive> /CMD:<LCU_Path> /D /D:<Default_CMDFile> /L1<LogFile> /L2<LogFile2> /PL:<Path_Values> /PA:<LCU_Path> /PD /REQ:<Client_Name> /0

Figure 6-76. LCU Installation (CASINSTL) (ws9716g4)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Installation - Phase One (1 of 6)

- **Display Driver Install**
 - If you need to have a better resolution and/or more colors than the default 640x480x16 setup, you should install the appropriate display driver. For example Netscape Communicator at the time of writing - needs at least 256 colors to run.
- **Feature Installer**
 - As previously mentioned, some components that belong to the base OS/2 operating system are installed by Feature Installer. After the initial installation using SEINST and following a reboot, Presentation Manager is working. With this pre-requisite fulfilled, CLIFI.EXE can be used to complete the update.

Figure 6-77. Installation —Phase One (1 of 6) (ws9716g6)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Installation - Phase One (2 of 6)

- **File and Print Sharing Services**
 - The most important difference between this and the previous versions of LAN or Warp Server is that LANINSTR (the File and Print Sharing Services installation program) no longer installs 386 HPFS. However, the parameters of LANINSTR remain unchanged.
- **386HPFS**
 - Because 386HPFS is now shipped as a separate product, it is no longer installed by LANINSTR. Moreover, LANINSTR will remove any 386 HPFS drivers from the disk drive. If you are installing 386HPFS for the first time, make sure that you install it after File and Print Sharing Services, but before rebooting the machine the next time it is needed.
- **First Failure Support Technology (FFST/2)**
 - In a CID environment, FFST/2 has to be installed in a separate step. The installation program is called FFSTINST.EXE.

Figure 6-78. Installation —Phase One (2 of 6) (ws9716g8)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Installation - Phase One (3 of 6)

- **TCP/IP Application Services**
 - Previous versions of TCP/IP used INSTALL.EXE for installation. From version 4 onwards, there was a switch to Feature Installer. The procedures and response file we have provided represents a working version and uses Feature Installer.

- **Netscape Communicator**
 - Netscape Communicator is installed using Software Installer. The basic product is installed by the installation program INSTALL.EXE in the \CID\SERVER\NETSCAPE directory on the OS/2 Warp Server for e-business CD ROM).

- **Personally Safe N' Sound (PSNS)**
 - Like many other products, Personally Safe N' Sound is installed by the Feature Installer.

Figure 6-79. Installation —Phase One (3 of 6) (ws9716h2)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Installation - Phase One (4 of 6)

- **Remote Access Services (RAS) or PPP Server**
 - Remote Access Services (also known as PPP Server) replaces the LAN Distance product. LAN Distance must be removed with the LDREMOVE command prior to installation of Remote Access Services.
- **Print Services Facility**
 - We have had to implement a two-stage installation of PSF/2. We implement these two steps in one command file - PSF2PREP.COM. This procedure first copies the source files to a local drive. It then calls the INSTALL through the LCU batch procedure.
- **Netfinity Services**
 - For further information on the installation of Netfinity Services, refer to the separate Netfinity Services CD that came with the OS/2 Warp Server for e-business package.

Figure 6-80. Installation —Phase One (4 of 6) (ws9716h4)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Installation - Phase One (5 of 6)

- **Lightweight Directory Access Protocol (LDAP) Client Toolkit**
 - OS/2 Warp Server for e-business supports Lightweight Directory Access Protocol (LDAP), and the product contains a client toolkit which may be installed. It is installed using Feature Installer. For further information on the LDAP client toolkit please refer to the online documentation and the \CID\SERVER\LDAP directory on the OS/2 Warp Server for e-business
- **Tivoli Management Agent (TMA)**
 - For further detail on the installation of the Tivoli Management Agent, refer to the online documentation and the \CID\SERVER\LCFAGENT directory on the OS/2 Warp Server for e-business CD ROM.
- **Lotus Domino GO Webserver**
 - OS/2 Warp Server for e-business includes a fully functional trial version of Lotus Domino Go Webserver. Lotus Domino Go Webserver is installed using Software Installer.

Figure 6-81. Installation —Phase One (5 of 6) (ws9716h6)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Installation - Phase One (6 of 6)

- **Websphere Application Server**
 - We found that the installation of WebSphere was not entirely CID enabled. In order to achieve successful unattended installation, we created a REXX command file **WEBSPHER.COMD**. This command file is shipped on the CD ROM with this book.
- **OS/2 Warp Server Books**
 - If they must be installed, then they can be by a REXX script called **INSTBOOK.COMD**, located in the **\IBMINST** directory on the OS/2 Warp Server for e-business CD-ROM.
- **IFSDEL**
 - **IFSDEL** removes the files installed by **THINIFS**.
- **CASDELET**
 - **CASDELET** removes all trace of LCU from the system. It is executed after all products have been installed.

Figure 6-82. Installation —Phase One (6 of 6) (ws9716h8)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Unit Summary

You should now be able to:

- Plan for migrating an existing system to OS/2 Warp Server for e-business
- Prepare a system for migration
- Understand the issues of CID migration techniques
- Understand the steps needed for simultaneously migrating to a new hardware platform and OS/2 Warp Server for e-business
- Migrate a system using panel install

Figure 6-83. Unit Summary (ws9716zz)

Notes:

Instructor Notes:

Purpose —

Details —

Transition Statement —

Unit 7. Resolving Problems

What This Unit Is About

This unit covers logs, methodologies, and tools used in problem determination and resolution.

What You Should Be Able to Do

After completing this unit, you should be able to:

- Locate appropriate logs and files required for problem determination
- Analyze messages and log data to identify problem component
- Manually start server components in a sequenced startup
- Invoke appropriate support assistance
- Use problem determination (PD) tools to gather additional data as directed by support
- Install fixpacks
- Identify additional sources of training for problem determination

How You Will Check Your Progress

Accountability:

- Lab exercises

References

Online Problem Determination Guide

Objectives

After completing this unit, you should be able to:

- Identify locations and purposes of various log files
- Identify references for various messages
- Analyze logs and messages to identify components related to the failure
- Disable autostart of server components and manually start each component in the proper sequence
- Resynchronize server passwords between Domain Controller (DC), backup DC and additional servers
- Identify appropriate support assistance (application, IBM, vendor, hardware, and so forth) and use proper channels to invoke that support
- Understand the purpose and setup requirements of system problem determination (PD) data gathering tools that may be required by support
- Identify sources of fixpacks, components that the fixpacks apply to, and methods to install fixpacks
- Identify courses and materials for additional problem determination training

Figure 7-1. Objectives (ws971700)

Notes:

Material should focus on tasks that the typical administrator should be able to perform, including understanding the sources (components) of various messages and log files and checking known documentation against these messages. Administrators should be able to manually bring up each component in sequence, validate it's operation, and recover normal network operation after problem correction (for example, resynchronize passwords). If the administrator cannot correct the problem, they should know which support organization to contact and how to invoke such support. Depending on the type of problem, the support organization may require additional documentation which the administrator will have to obtain using one or more of a variety of tools supplied with the system. The administrator should know the purpose of these tools, the types of data it will collect (potential organization security exposures), how to invoke the tools properly, and how to collect the resultant data for return to the support organization.

In-depth analysis of problem determination (PD) data is beyond the scope of this course, and students should be referred to other courses and sources of information.

Instructor Notes:

Purpose — There are two major parts to this unit: problem determination tasks the administrator should be able to perform unaided, and tasks they should be able to perform with the aid of the appropriate technical guidance.

- Unaided tasks are the analysis of messages and log files to determine what parts of the system are working and what parts are not. This may require the administrator to manually bring up components in sequence and analyze messages and log files for each component. In addition, the administrator should be able to resynchronize the network servers after problem correction.
- Aided tasks are ones that may be required under direction of the appropriate support center. Administrators should know what tools are available, what security exposures any data gathered by these tools may entail, how to start and stop the tools, and how to gather the resultant data and send it to support.

Details —

- Gathering Initial Problem Documentation Data (40 minutes)
 - System messages
 - Application messages
 - Installation log files (various)
 - Application specific log files
 - Net Error logs
 - FFST logs/data
 - popuplog.os2
 - lantran.log
 - Full screen trap data
- Analyzing Messages and Log Data (15 minutes)
 - List sources of documentation
 - Determine if problem is due to the hardware, operating system, network, or application
 - Check for known fixes
 - Apply fixes (fixpacks)
- Identifying Server Component Problems (15 minutes)
 - Disabling NETWRKSTA.200
 - Disabling NIC drivers
 - Sequential starting of services
 - Resynchronizing server passwords
- Invoking Appropriate Support Assistance (10 minutes)
 - Determine appropriate technical support
 - Invoke application supplier assistance
 - Invoke IBM assistance
 - Contacts and reporting
 - URL, passwords, and so forth
- Obtaining Additional Problem Documentation Using System Tools under the Direction of Support (90 minutes)
 - Use System Trace facility (include demo)
 - Invoke and stop trace
 - Collect and format trace data
 - Use Strace Facility (include demo)
 - Invoke and stop trace

- Collect and format trace data
- Configure for System dumps
- Dump partition
- Configure for Process Dumps (application) (include demo)
- Configure selected data to be dumped
- Install Debug Kernel
- Version checking
- Com port and modem configuration
- Testing
- Invoke network PD tools (include demo)
- Use SMB trace
- Use Iptrace
- Use netstat
- Perform validation of collected dumps and traces
- Use Dump analysis tools
- Use Trace formatter(s)
- Recognize valid data
- Installing Fixpacks (15 minutes)
 - Obtain fixpacks
 - Determine sites
 - Determine versions
 - Determine components
 - Determine driver updates (IBM and 3rd party)
 - Review fixpack information (review readme)
 - Review Install considerations
 - Review operational considerations
 - Review additional features
 - Choose install method and install fixpacks
 - Choose install method
 - Diskettes
 - RSU (3 flavors)
 - CID
 - Service vs Fservice
 - Archive and backup directories
 - Remove back level versions
 - Install fixpacks
- Obtaining Additional Problem Determination Training (15 minutes)

Transition Statement —

7.1 Gathering Initial Problem Documentation Data

Instructor Topic Introduction

What students will do — Students will learn how to identify system and application messages, where the various components place their install logs (and the names), and what log data is available from the system while in day to day operation.

How students will do it — The instructor will show how to invoke online help for system messages. The instructor will point out that application messages need their own documentation sources as documented in the applications shipped with OS/2 Warp Server for e-business. The instructor will review installation logs for various components, pointing out which components created which logs and some data within the logs. Detailed analysis of each install log is not required. The instructor will point out logs created or updated during normal system operations, and how to extract or view these logs. This information will be reinforced in a follow on lab.

What students will learn — Students will learn how to gather and interpret the following kinds of problem determination data:

- System messages
- Application messages
- Installation log files (various)
- Application specific log files
- Net Error logs
- FFST logs/data
- popuplog.os2
- lantran.log
- Full screen trap data

How this will help students in their job — A system administrator must be able to do more than just maintain a running system. They must also be able to identify and take the steps to correct any problems arising after installation. A starting point for this process is to know what data is available, and how to obtain it.

Initial Problem Documentation

- **Gathering Initial Problem Documentation Data**
 - Information provided online
 - Reference books
 - Levels of support personnel
 - List of user environments
- **Is it Hardware?**
 - Any new hardware been added?
 - The hardware functioning?
 - Entries in the message log files indicating a hardware problem?
- **Is it Software?**
 - Problem associated with a program?
 - Nature of the problem?
 - System Error log indicate a software problem?
 - Problem Determination Tools -> System Error Log
 - SYSLOG command
 - Application error messages displayed?
 - System error messages displayed?

Figure 7-2. Initial Problem Documentation (ws971702)

Notes:

Prefix	Messages Specified
ACF	Access Control Facility
BRZ	IBM Token-Ring Network 16/4 Adapter II
CAS	CID utility
CPM	IBM ANDIS Serial Communications Adapter
DXM	LAN Support Program Device Driver
EPW	OS/2 Error Logging Facility
ETH	IBM Ethernet Adapter
EQN	IBM Netfinity Remote Workstation Control
GSS	Generic Security Service messages
ICA	Realtime Interface Co-Processor OS/2 Support
IDL	Interface Definition Language messages
IRO	IBM WiReless Adapter
LA1	IBM PCI Token-Ring Adapter
LOK	Keyboard and Mouse Port Locking Program
LT	LAN Adapter and Protocol Support
LT0	IBM LANDD
LT1	IBM PC Network Adapter
LT2	IBMTOK.OS2 Device Driver

LT3	IBM 3270 Emulation Adapter
LT4	IBM Token-Ring Network 16/4 Busmaster Server Adapter/A
LT9	IBM 16/4 Busmaster EISA Adapters
LTC	IBM Streamer® Family Adapters
LTE	IBM FDDI NDIS Device Driver
LTG	IBMTOKCS Device Driver
LTH	Wireless Device Driver
LIB	Library messages
MCL	Managed Object Class Library messages
NET	Client and File and Print Services messages
LSI	LAN Services Installation/Configuration program
NTI	Networking Products Installation
PRO	Protocol Manager Component (protman.os2)
REX	REXX
RGY	Registry
RPC	Remote Protocol
SEC	Security Service
SPL	Spooler
SSA	Simple Network Management Protocol (SNMP)
SVC	Serviceability
SYS	OS/2
THREADS	Usually programming error
TCL	Tool Control Language
UPM	User Profile Management
UBI	NIUps Adapter
WCL	LAN NetView when being loaded into memory
XDF	Extended Disk Format
XIO	MPTS

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Installation Log Files (1 of 2)

Installation Log Files Created In \IBMINST\LOGS Directory

Subdirectory	Filename	File Contents
	CLNDESK.LOG	Desktop Shuffler log
	TOPINST.LOG	Top installation main log
\CONINST\	CONINST.LOG	Coninst log
\FEST\	LOCAL.LOG	FFST log
\IBMINST\	MKRSP.LOG	Building response file log
\TCPAPPS\	TCPINST1.LOG	TCP/IP log
\TCPAPPS\	TCPINST2.LOG	TCP/IP log
\LOCINSTU\	LOCAL.L2	Network product installation status, including log of products installed
\LS\	LOCAL.INS	LAN Server installation errors log
\LS\	LOCAL.SRV	LAN Server installation log
\MPTS\	LOCAL.MPT	MPTS installation log
\PSNS\	CIDERR.LOG	PSnS installation errors log
\PSNS\	CIDHIST.LOG	PSnS installation log
\BOOKS\	LOCAL.BKS	Books installation log
\NETSCAPE\	LOCAL.NET	Netscape installation log
\PPPSRV\	PPP.LOG	Remote Access Services installation log
\PPPSRV\	PPPCFG.LOG	Remote Access Services configuration log
\PSF\	LOCAL.LOG	Print Services Facility installation log
\PSF\	LOCAL.HST	Additional Print Services Facility installation log
\LCFAGENT\	LOCAL.LCF	Tivoli Management Aent (TMA) installation log
\LDAP\	LDAPERR.LOG	LDAP installation error log
\LDAP\	LDAPHST.LOG	LDAP installation log

Figure 7-3. Installation Log Files (1 of 2) (ws971704)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Installation Log Files (2 of 2)

Installation Log Files Created in \BMLANLOGS Directory

MESSAGES.LOG	LAN Server log
SCHED.LOG	LAN Server Log

Installation Log Files Created in \MMOS2\LOGS Directory

MINSTALL.LOG	Multimedia installation and configuration log
--------------	---

Installation Log Files Created in \OS2\INSTALL Directory

CD.LOG	Multimedia detection of CD-ROM information
CURRENT.LOG	Log of current installed items by feature install
DSPINSTL.LOG	Video display drivers log
FFSTINST.LOG	FFST log
IBMLSHST.LOG	LAN Server history log
INST_L1.LOG	Log created by Netscape
INSTALL.LOG	Base installation main log
LAPSHIST.LOG	MPTS history log
OS2MM.LOG	Multimedia detection of card, windows, etc.
TCPINST.LOG	TCP/IP log
WALINST.LOG	PPP Server installation module log
WINOS2.LOG	WIN-OS/2 installation path log
WPINSTAL.LOG	History log of installed items by feature install

Installation Log Files Created In \OS2\INSTALL\NETSCAPE Directory

NETSCAPE.LOG	Netscape installation log
--------------	---------------------------

Figure 7-4. Installation Log Files (2 of 2) (ws971706)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Application-Specific Logs

- Application Documentation
- Net Error logs
 - Lan Server Error Log utility
 - NET ERROR </R /C:>
- POPUPLOG.OS2
 - SuppressPOPUPS=
- IBMCOMLANTRAN.LOG
- IPE System Trap screen
- FFST
 - FFST setup
 - FFST documentation

Figure 7-5. Application-Specific Logs (ws971708)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

7.2 Identifying Server Component Problems

Instructor Topic Introduction

What students will do — Students will learn how to identify server component problems by learning the functions of each component and the sequence required to bring the system up to a fully operational condition.

How students will do it — Lecture, discussion, and lab.

What students will learn — Students will learn the functions of each of the components, and the sequence required to bring the system up to a fully operational condition.

- Identify Server Component Problems (15 minutes)
- Disable NETWRKSTA.200
- Disable NIC drivers
- Sequential start of services
- Resynchronize server passwords

How this will help students in their job — Being able to isolate specific components and the sequence to bring the system back up will help them quickly identify problems. In some cases, the server may still be available for restricted functions while the problem is being corrected.

Identifying Server Component Problems

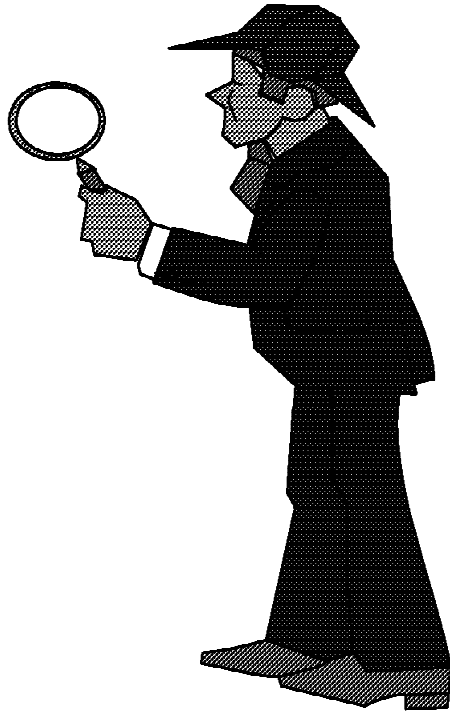


Figure 7-6. Identifying Server Component Problems (ws971710)

Notes:

Note: Refer to Chapter 2 of the *Network Administrator's Guide*

PATH, LIBPATH, and DPATH statements in the CONFIG.SYS file are intact.

1. Rename the STARTUP.CMD file.
2. Disable NETWKSTA.200
3. Disable LAN drivers by adding REM at the start of lines.
 - ELNKII.OS2
 - ELNKMC.OS2
 - IBMNET.OS2
 - IBMNETA.OS2
 - IBMTOK.OS2
 - IBMTRBM.OS2
 - LANDD.OS2
 - MACWDAT.OS2
 - MACWDMC.OS2
 - NETBEUI.OS2
 - UBNEIPC.OS2

- UBNEIPS.OS2
 - MACETH.OS2
 - IBMXLN.OS2
4. Use the OS/2 installation diskette to copy the OS2.INI and OS2SYS.INI files from backup or from another workstation.

If the Requester service does not start, start OS/2 Warp Server or LAN Server services:

- NET START REQUESTER /WRKS:
- NET START LSCLIENT
- NET START SERVER /SRVS:
- NET START LSSERVER
- NET START service(s) listed in srvservices parameter
- NET START NetLogon

If the NET START NetLogon command is unsuccessful, the problem is probably caused by the NET.ACC file.

NET.ACC passwords can become unsynchronized when you

- Reinstall a default or backup NET.ACC file
- Change an additional or backup server's password on the DC without the password being replicated to the AS or backup server
- Change passwords as a network error occurs
- Shut down AS or BS while DC continues

To resynchronize passwords with the NetLogon service:

At the domain controller:

Verify that the additional server exists or create it
Start Netlogon

At the additional server:

```
LOGON USERID /P:PASSWORD
NET STOP SERVER
```

At the domain controller:

```
NET USER servername newpasswd
```

At the additional server:

```
NET ACCOUNTS /ROLE:STANDALONE
NET USER servername newpasswd
NET ACCOUNTS /ROLE:MEMBER
or
NET ACCOUNTS /ROLE:BACKUP
NET START SERVER
```

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

7.3 Invoking Appropriate Support Assistance

Instructor Topic Introduction

What students will do — Students will learn how to invoke the appropriate channels to get help in resolving problems that require or need outside assistance.

How students will do it — Lecture and discussion of support organizations.

What students will learn — Methods of contacting support organizations. Responsibilities of support and the administrator. Documentation required and problem status tracking.

- Invoke Appropriate Support Assistance
- Determine appropriate technical support
- Invoke application supplier assistance
- Invoke IBM assistance
- Describe contacts and reporting
- Describe URL, passwords, and so forth

How this will help students in their job — Effective use of second-level support will lead to faster resolutions of problems that cannot be resolved with the sources available to an administrator.

Determine Appropriate Technical Support

- Logs
- Messages
- Failure symptoms

Figure 7-7. Determine Appropriate Technical Support (ws971712)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Invoke Appropriate Support Assistance

- Invoke application supplier assistance
- Invoke IBM assistance

Figure 7-8. Invoke Appropriate Support Assistance (ws971714)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Information

- Config.sys
- Logs
- Messages
- Recreation

Figure 7-9. Information (ws971716)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Contacts, Reporting, Logging

- Points of contact
- Tracking log
- Problem status

Figure 7-10. Contacts, Reporting, Logging (ws971718)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

URLs

<http://www.austin.ibm.com/pspinfo/os2.html>

<http://ps.software.ibm.com/>

<http://www.service5.boulder.ibm.com/pspfixpk/nsf>

http://service.boulder.ibm.com/asd-bin/doc/en_us/catalog.htm

<http://www.developer.ibm.com/devcon/titlepg.htm>

<ftp://ftp.hursley.ibm.com/pub/java/fixes>

<http://www.software.ibm.com>

<http://www.software.ibm.com/OS/WARP/PRODUCTS/AURORA>

<http://www.software.ibm.com/OS/WARP/PRODUCTS/WARP-SERVER>

<http://service.software.ibm.com/os2ddpak/html/>

Figure 7-11. URLs (ws971720)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

7.4 Obtaining Additional Problem Documentation Using System Tools Under the Direction of Support

Instructor Topic Introduction

What students will do — Students will learn how to use various system tools in problem determination.

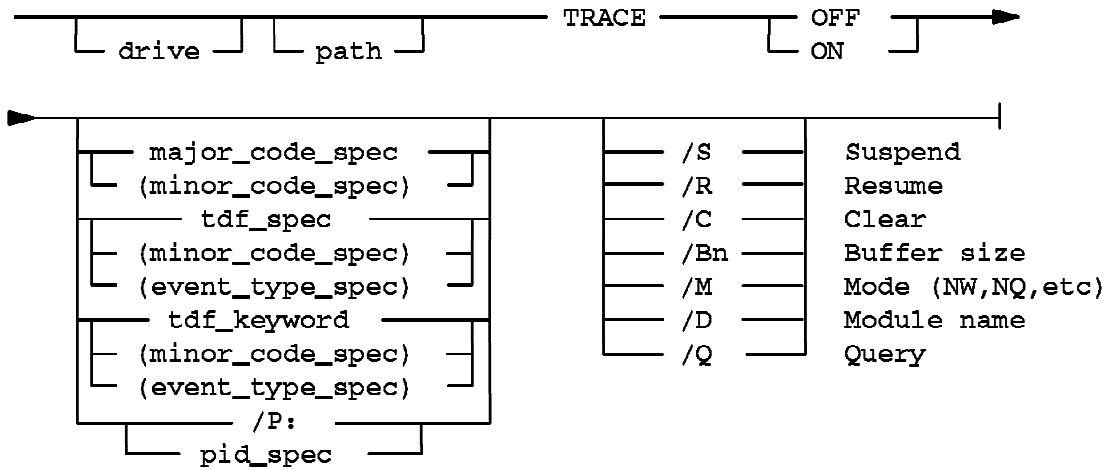
How students will do it — Instructor-led presentation, demonstration, and discussion.

What students will learn — Students will learn the purpose and use of various system tools. Some of these tools may require setup that needs to be planned during installation.

- Use System Trace facility (include demo)
 - Invoke and stop trace
 - Collect and format trace data
- Use Strace Facility (include demo)
 - Invoke and stop trace
 - Collect and format trace data
- Configure for System dumps
 - Dump partition
- Configure for Process Dumps (application) (include demo)
 - Configure selected data to be dumped
- Install Debug Kernel
 - Version checking
 - Com port and modem configuration
 - Testing
- Invoke network PD tools (include demo)
 - Use SMB trace, Iptrace, and netstat
- Perform validation of collected dumps and traces
 - Use Dump analysis tools
 - Use Trace formatters
 - Recognize valid data

How this will help students in their job — System administrators that know what system tools are available, what data they gather, and how to invoke such tools are an effective part of the *problem resolution team*. Their knowledge of what tools are available can assist in speeding up problem identification when dealing with organizations that do not know the full scope of available tools. Their knowledge of the types of data gathered can identify potential security exposures when the data is transmitted to support. Their knowledge of the use of these tools eliminates communication errors when directed on the use of such tools by support organizations.

System Trace Facility



• **Related commands**

- TRACEBUF=
- TRACEFMT
- TRACEGET
- TRSPPOOL
- TRCUST
- PSTAT

Figure 7-12. System Trace Facility (ws971722)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Trace Point Types (1 of 2)

- Trace point types
 - STATIC TRACE points
 - DYNAMIC TRACE points
- Static Trace Points
 - API Call (DosSysTrace)
 - Machine Exceptions Major Code: 3
 - Hardware Interrupts Major Code: 4
 - Device Helper Routines Major Code: 6
 - Disk Device Driver Major Code: 7

Figure 7-13. Trace Point Types (1 of 2) (ws971724)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Trace Point Types (2 of 2)

- Dynamic Trace Points
 - TDF files
 - TFF files
 - Inserted at instruction
 - Can be built for any DLL or application
 - System supplied
 - TRACE ON KERNEL(FS,LDR,NLS,PIP,SEL,SEM,SIG,TIM,TK,VM)
 - TRACE ON DOSCALL1(FS,LDR,LNK,MSG,MSP,NLS,SEM,TSK)
 - TRACE ON QUECALLS
 - TRACE ON SESMGR
 - TRACE ON OS2CHAR(KBD,MOU,VIO)
 - TRACE ON PMSHAPI
 - TRACE ON PMWIN
 - TRACE ON PMGRE
 - TRACE ON PMPIC
 - TRACE ON PMGPI

Figure 7-14. Trace Point Types (2 of 2) (ws971726)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Groups

FS- file system
KBD- keyboard I/O
LDR- resource loader
LNK- environment management
MOU- mouse I/O
MSG- message management
MSP- virtual memory management
NLS- national language support
PIP- pipe support
SEL- selector-related
SEM- semaphore support
SIG- signal handling
TIM- timer support
TK- task management
TSK- monitor support
VIO- video I/O
VM- virtual memory management

Figure 7-15. Groups (ws971728)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Types

API- application programming interface

INT- internal

PRE- pre-processing invocation

POST- post-processing invocation

Figure 7-16. Types (ws971730)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Strace Facility (Performance Tracing)

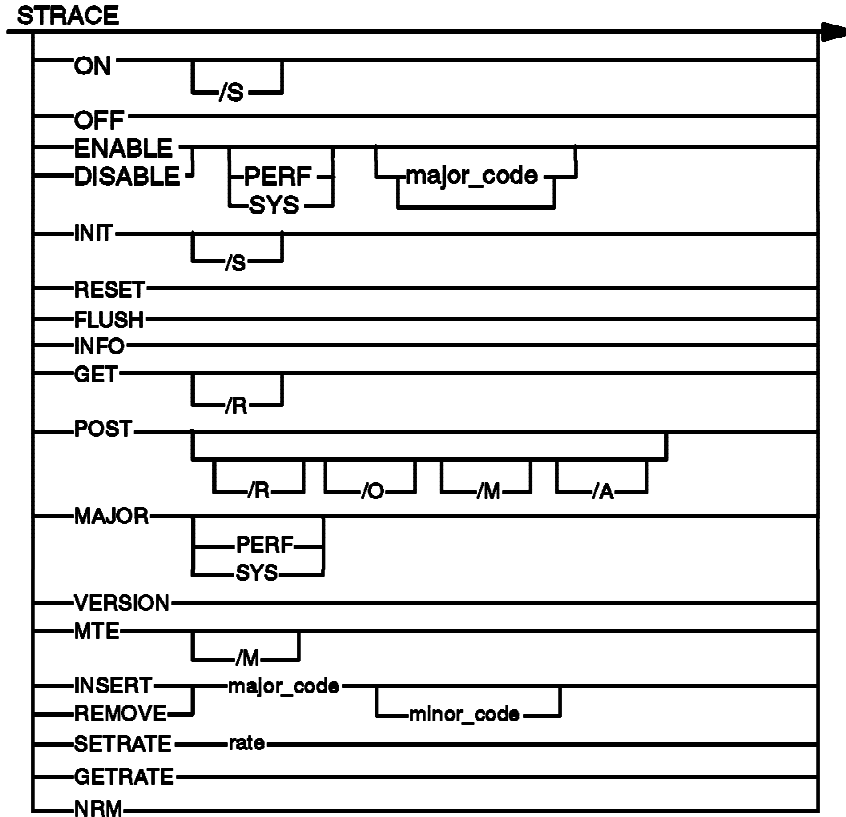


Figure 7-17. Strace Facility (Performance Tracing) (ws971732)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

CONFIG.SYS

- CONFIG.SYS format
 - STRACE=INIT x
 - STRACE=ON
 - STRACE=ENABLE n1 n2 n3 ...
 - STRACE=DISABLE n1 n2 n3 ...
 - STRACE=INSERT n1 (SMP only)
 - STRACE=REMOVE n1 (SMP only)
- Trace Hooks
 - Exceptions and Interrupts
 - Dos (OS/2 Kernel) functions
 - DevHlp functions
 - Kbd functions
 - VIO functions
 - VDH functions
 - Vpic functions
 - WinOS2 functions
 - Internal Kernel related
 - Reserved for Customer

Figure 7-18. CONFIG.SYS (ws971734)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

IPTRACE

IPTRACE [-i] [interface]

IPTRACE (all packets on all interfaces)
IPTRACE lan0 (all packets on lan0 interface)
IPTRACE -i (IP packets on all interfaces)
IPTRACE -i lan0 (IP packets on lan0 interface)

IPFORMAT [-a]
 [-d]
 [-e<opt>]
 [-f<file>]
 [-h]
 [-n]
 [-s<hwaddress>]
 [-x]

-a : Don't format ARP/RARP
-d : Don't display data portion
-e : Exclude <opt>: a (ARP), t (TCP), u (UDP), i (ICMP), g (IGMP)
-f : <input file> (default IPTRACE.DMP)
-h : Raw data after formatted info
-n : No hex data for unknown data
-s : ONLY format data for <hwaddress> (Source or Destination)
-x : Convert datafile to "Sniffer" format file

Figure 7-19. IPTRACE (ws971736)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

NETSTAT Command

```
.....  
.  
>>..netstat.....<<  
..-a.... Addresses of interfaces  
..-c.... ICMP stats  
..-i.... IP stats  
..-m.... Memory buffers  
..-n.... Interface information  
..-p.... ARP table contents  
..-r.... Routing table contents  
..-s.... Open sockets  
..-l.... Listening sockets  
..-t.... TCP stats  
..-u.... UDP stats
```

Figure 7-20. NETSTAT Command (ws971738)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

SMB Trace Tool

- HPFS386 SMB tracing
- HPFS386 File System traces
- Requester SMB tracing
- Netbios and 802.2 tracing
- Import sniffer trace files

Figure 7-21. SMB Trace Tool (ws971740)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Process Dump Facility

- Non-Intrusive
- Physical and Virtual memory
- Process selective

DUMPPROCESS=[Drive:\pppppp][/F=x]

PDUMPSYS.EXE - Set default data to be dumped for Ring 0

PDUMPUSR.EXE - Set default data to be dumped for Ring 2/3

PROCDUMP.EXE - Set data to be dumped for a specific process

Figure 7-22. Process Dump Facility (ws971742)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

PROCDUMP (1 of 2)

```
PROCDUMP [ON | OFF | FORCE | RESET | SET | QUERY]
          [L:<location>]
          [F:x] [/PROC:procnamelist]
          [PID:pidlist]
          [IPROC:procnamelist]
          [IPID:pidlist]
          [/SYSTEM]
          [C:<x>]
          [P:<x>]
          [D:aaa, bbb]
          [K:<x>]
          [U]
```

Figure 7-23. PROCDUMP (1 of 2) (ws971744)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

PROCDUMP (2 of 2)

- PROCDUMP ON [/L:<location>] [/F:x]
- PROCDUMP FORCE [/PROC:procnames] [/PID:pids] [/SYSTEM]
- PROCDUMP OFF
- PROCDUMP RESET [/PROC:procnames]
[/PID:pids] | /PID:all]
[L] [F]
- PROCDUMP SET [/PROC:procnames]
[PID:pidlist]
[IPROC:procnamelist]
[IPID:pidlist]
[C:<x>] [P:<x>]
[D:aaa, bbb, PADDR(ALL)]
[K:<x>] [U]

- PROCDUMP QUERY

Figure 7-24. PROCDUMP (2 of 2) (ws971746)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

PDUMPSYS, PDUMPUSR

PDUMPSYS <one or more of the following >

PDUMPUSR <one or more of the following >

SUMM	- Summary information for each thread
SYSSUMM	- Summary information for all threads
IDT	- Interrupt Descriptor Table.
SYSLDR	- Loader data
SYSFS	- File System data
SYSVM	- Virtual Memory data
SYSTK	- Task Management related data
PRIVATE	- Private code and data
SHARED	- Shared code and data
INSTANCE	- Instance data
MVDM	- MVDM Instance data
SYSMVDM	- MVDM data for all VDM and kernel
SEM	- Semaphore blocked threads
SYSSEM	- SEM data all blocked threads in the system
KRHEAPS	- Kernel Resident Heaps.
KSHEAPS	- Kernel Swappable Heaps.
SYSPG	- Physical and Page Memory records
SYSIO	- IO subsystem structures
TRACE	- System Trace buffer(s)
STRACE	- STRACE buffer
ALL	- all of the previous mentioned options
LADDR(list of ranges)	- Dump a linear address range.
PADDR(list of ranges)	- Dump a Physical address range.
PADDR(ALL)	- Dump of all physical memory (system dump)
UPDATE	- allows adding additional options

Figure 7-25. PDUMPSYS, PDUMPUSR (ws971748)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

System Dump Facility

TRAPDUMP= [OFF,Drive: | ON,Drive: | R0,Drive:] [,PD]

OFF - No automatic dumps

ON - System dump on either application or system failure

R0 - System dump on system failure only

Drive: - Diskette or HD Partition.

Partition requirements

- Size of ram plus 1-2 MB (minimum)
- Formatted FAT
- Volume lable of SADUMP
- Bios (Int 13) accessable
- Compatability lettering

Figure 7-26. System Dump Facility (ws971750)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Debug Kernel

- Kernels
 - Retail
 - Hstrict
 - AllStrict
- Hardware
 - Ascii Debug Terminal
 - null modem cable
 - or
 - Modem
- Optional
 - Symbol files
 - Trace Formatting files (TFF)

 - OS2LDR
 - PMDD.SYS
 - PMGRE.DLL
 - PMWIN.DLL

 - KDB.INI init control file

Figure 7-27. Debug Kernel (ws971752)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

7.5 Installing Fixpacks

Instructor Topic Introduction

What students will do — Students will learn how fixpacks are installed and options for backing out of fixpacks.

How students will do it — Lecture and discussion.

What students will learn — Fixpacks are installed to various components of OS/2 Warp Server for e-business. There are various options available for the installation and back out of fixpacks.

- Installing Fixpacks (15 minutes)
 - Obtain fixpacks
 - Determine sites
 - Determine versions
 - Determine components
 - Determine driver updates (IBM and 3rd party)
 - Review fixpack information (review readme)
 - Review Install considerations
 - Review operational considerations
 - Review additional features
- Choose install method and install fixpacks
 - RSU (3 flavors)
 - CID
 - Service versus Fservice
 - Archive and backup directories
 - Removing back level versions
 - Install fixpacks

How this will help students in their job — System administrators need to know the components involved in fixpacks and the options available for installation. This allows them to effectively manage the planning, installation, and recovery of previous levels if required.

Installing Fixpacks

- Determine components
- Determine versions
- Determine sites
- Obtain fixpacks

Figure 7-28. Installing Fixpacks (ws971754)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Driver Updates (IBM and Third Party)

- Device
- Video
- Printer

Figure 7-29. Driver Updates (IBM and Third Party) (ws971756)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Review Fixpack Information (Readme)

- Install considerations
- Operational considerations
- Additional features

Figure 7-30. Review Fixpack Information (Readme) (ws971758)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Choose Install Method and Install Fixpacks

- **RSU (three flavors)**
- **Service**
 - Selectable drives
 - GUI
 - Deferred
- **FService**
 - All drives
 - VIO
 - Immediate (diskette or maint partition)
- **Archive and backup directories**
- **CID**
- **Removing old backups (commit)**
- **Reversion to previous levels**

Figure 7-31. Choose Install Method and Install Fixpacks (ws971760)

Notes:

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

7.6 Obtaining Additional Problem Determination Training

Instructor Topic Introduction

What students will do — Students will learn options for obtaining additional skills and training in problem determination.

How students will do it — Lecture and discussion.

What students will learn — Learn about some additional sources of information and skills available for system and network problem determination.

- Obtaining Additional Problem Determination Training (15 minutes)
 - Warp Debug Classes
 - Lan Server PD Class
 - TCPIP
 - Architecture and PD

How this will help students in their job — Knowing what additional sources of information and courses are available allows an administrator to select what particular areas of expertise they wish to extend themselves into. By inference, it also defines the scope of what their expected responsibilities in supporting the system are.

Additional PD Training

- **Warp Debug Classes (SG24-4640 INF file)**
 - PS90/PS900 5 days
 - PS91/P1191 3 days
 - PS97/P1097 2 days
 - PS98/P1098 4 days
- **Lan Server PD Workshop**
 - IBM Austin
- **TCP/IP Architecture and PD**
 - S9107/G3740 3/2 days
 - S0260E/G3787 4/5 days
 - S0429E/G3861 3/3 days
 - NW043/NW430 3/3 days

Figure 7-32. Additional PD Training (ws971762)

Notes:

PS90/PS900

This course teaches you how to debug OS/2 Warp applications using the dump formatter.

- How OS/2 Warp uses the Intel X86 hardware to implement a protected virtual storage environment.
- Determine why a trap occurs, and how to display descriptors, page table entries, data and instructions.
- Introduction to reading and interpreting mnemonic machine-level instructions.
- How a stack is used by both hardware and software.
- The use of application documentation during problem analysis.
- How to gather proper documentation for a problem.

PS91/P1191

This course teaches you how to perform system problem diagnosis of traps in privileged code, including device drivers and file systems using the debug kernel as the primary tool. It also teaches how the hardware allows privilege level changes, how

to find which API was called, with the parameters passed, and how to identify the file system and physical device drivers involved.

PS97/P1097

This course teaches you how to use the system trace facility, the Dtrace tool, and how to customize and build traces into products during and after the development cycle. Using these tools, it shows you how to specify and gather ad-hoc trace information for problem analysis.

PS98/P1098

This course teaches you how to use the dump formatter, the system trace, and the debug kernel to analyze waits and loops in an OS/2 environment.

Instructor Notes:

Purpose —

Details —

Additional Information —

Transition Statement —

Unit Summary

You should now be able to:

- Identify locations and purposes of various log files
- Identify references for various messages
- Analyze logs and messages to identify components related to the failure
- Disable autostart of server components and manually start each component in the proper sequence
- Resynchronize server passwords between Domain Controller (DC), backup DC and additional servers
- Identify appropriate support assistance (application, IBM, vendor, hardware, and so forth) and use proper channels to invoke that support
- Understand the purpose and setup requirements of system problem determination (PD) data gathering tools that may be required by support
- Identify sources of fixpacks, components that the fixpacks apply to, and methods to install fixpacks
- Identify courses and materials for additional problem determination training

Figure 7-33. Unit Summary (ws9717zz)

Notes:

Instructor Notes:

Purpose —

Details —

Transition Statement —

